A STUDY TO EVALUATE THE EFFECTIVENESS OF GARLIC POWDER IN REDUCING THE BLOOD PRESSURE AMONG CLIENTS WITH HYPERTENSION IN A SELECTED RURAL AREA AT COIMBATORE

COIMBATORE

A DISSERTATION SUBMITTED TO THE TAMILNADU DR. M.G.R MEDICAL UNIVERSITY, CHENNAI, IN PARTIAL FULFILLMENT OF REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

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BY

RAJALAKSHMI.R

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DEDICATION

***

I praise the Lord Almighty for his blessings throughout this study.

This book is dedicated to my mother R.PAPPAL and my brothers R. RAJESH KANNAN and R.RANJITH KUMAR who confidently supports all my professional endeavours and who has always been there for me.

*****

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ABSTRACT

Hypertension is often called as “silent killer” because people who have it are often symptom free. As a disease, hypertension is a major contributor to death from cardiac, renal, and peripheral vascular disease. Hence the research study was to evaluate the effectiveness of garlic powder in reducing the blood pressure among clients with hypertension in a selected rural area at Coimbatore.

The objectives of the study

- To assess the level of blood pressure among clients with hypertension.
- To evaluate the effectiveness of garlic powder in reducing the level of blood pressure among clients with hypertension.
- To determine the association between the level of blood pressure among clients with hypertension with their selected demographic variables.

The study was conducted in vazhukkuparai village at Coimbatore. In this study Pre-experimental design was adopted and Non randomized purposive sampling technique was used to select the 30 subjects. The structured interview questionnaire used for data collection and the blood pressure level was checked by using standardized sphygmomanometer before and after intervention. The intervention of 900 mg of Garlic powder mixed with 25 ml skimmed milk administered orally for once a day before breakfast and this was continued for 30 days.

The collected data were analyzed by using both descriptive and inferential statistical methods. Paired‘t’ test was used to evaluate the effectiveness of garlic

powder to reduce the level of blood pressure among clients with hypertension. The obtained ‘t’ value 11.98 was significant at $p< 0.05$ level. The findings of the study revealed that garlic powder was effective in reducing the blood pressure among clients with hypertension.

Key words: Effectiveness, Garlic Powder, Blood Pressure and Hypertension

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CHAPTER I

INTRODUCTION

“A daily dose of garlic can save your life”

-Daily express

Blood pressure is distributed normally in the population with no real definition between people who are normotensive and those who are hypertensive. Blood pressure is the pressure exerted by circulating blood upon the walls of blood vessels, and it is one of the principal vital signs. During each heart beat, blood pressure varies a maximum (systolic) and a minimum (diastolic) pressure. Hypertension is defined as systolic blood pressure above 140 mmHg and diastolic blood pressure above 90mmHg. Hypertension is classified as primary and secondary. About 90-95% of cases are termed as primary Hypertension which refers to high blood pressure with no medical cause can be found. The remaining 5-10% of cases are termed as secondary Hypertension is caused by other condition that affects the kidneys, arteries, heart and brain.

Hypertension is a known risk factor for cardiovascular morbidity and mortality, affecting an estimated 1 billion individuals worldwide. High blood pressure is often called the “silent killer”. Hypertension is prevalent in developing as well as developed countries like India and china. Prolonged uncontrolled or inadequate treatment of Hypertension is a major risk factor for the occurrence of heart attack, stroke, kidney failure and other cardio vascular diseases.

Hypertension is occur due to obesity, emotional disturbances, excessive alcohol intake and overstimulation with coffee, tobacco and diabetes mellitus, excess dietary intake of sodium. Hypertension is more prevalent in men in young adulthood and early middle age. Essential Hypertension is most common between age 30 and 40 years. Hypertension is one of the commonest disease of the elderly people.

Hypertension is treated by anti hypertensive drugs and also the non pharmacological approaches like weight reduction, restriction of alcohol, sodium and tobacco, exercise and relaxation are definitive intervention that should be used in all antihypertensive therapy. Some of the interventions for individual which will be done in a clinical setting while others will be done in the workplace, school, and general community setting. An analysis of the needs of various sub-groups in the population ensures that programs will be responsive to varying characteristics such as age, income, education, language and culture.

Garlic is a species in the onion family, used as a medicine to treat a wide range of diseases and conditions. The garlic bulb is the most commonly used part of the plant, it is divided into numerous fleshy sections called cloves. The cloves are used for medicinal purposes.

Historically garlic has been used around the world to treat many conditions, including Hypertension, infections and snakebites and some cultures have used it to ward off evil spirits. Currently garlic is used for reducing cholesterol level and cardiovascular risk as well as for its antineoplastic and antimicrobial properties. Garlic is perhaps the most widely quoted herb with medicinal values in the medical

literature. Garlic has been used as both food and medicine in many cultures for thousands of years. Today garlic is used to prevent heart disease including atherosclerosis, high cholesterol, and high blood pressure and to improve the immune system.

Book of alternative nutrition (2006) report revealed that garlic has the ability to bring down high blood pressure. Garlic is a fast-acting as high blood pressure medication and also garlic can be almost as effective as lifestyle changes like weight loss, regular exercise and cutting back on salt intake.

From alternative and ayurvedic medicine, garlic is known to decrease arterial blood pressure, reduce blood fat and cholesterol and inhibit platelet aggregation and posse's antibacterial and antifungal properties. People with Hypertension taking garlic supplements daily, there was a reduction in blood pressure. The research shows that garlic can reduce blood pressure in people with high blood pressure by as much as 7% (or) 8%. It is also seems to lower blood pressure in people with normal blood pressure. Garlic supplement are made from whole fresh garlic, dried (or) freeze-dried garlic, garlic oil and aged garlic extracts. Most studies have used a specific Garlic Powder product. In recent decades more than 2,000 clinical studies have validated, garlic has folk healing effects so it is called as stinking rose.

"The art of medicine consists of keeping the patient amused while the nature heals the disease"

-volataires

Need for the Study

"He who has health, has hope; and he who has hope, has everything"

- Buddha

High blood pressure is an important public health problem in India. It causes high death rates among people in developing countries like China and India. Recent studies have shown a high prevalence of Hypertension among adults in both urban and rural areas. According to a research by scientist from the University of Auckland in New Zealand about 54% of all strokes, 47% of ischemic heart disease, 75% of hypertensive disease and of other cardiovascular disease probably resulted from high blood pressure.

Approximately 1 billion people worldwide have high blood pressure, and this number expected to increase to 1.56 billion people by the year 2025.That translates to about 1 out of every 4 adults being afflicted with Hypertension. According to recent estimates, nearly one in 3 United States adults has high blood pressure, but because there are no symptoms, nearly one-third of these people don't know they have it. United State of America (2010) survey indicates that 24% of United States adults approximately 43 million people have Hypertension and only 47 percent have optimal blood pressure.

World Health Organization (WHO) (2006) report revealed that in India prevalence of Hypertension was 59.9 and 69.9 per 1000 in males and females respectively in the urban population, and 35.3 and 35.9 per 1000 in males and females respectively in the rural population.

Indian Council of Medical Research (ICMR) (2004) conducted a study on prevalence of Hypertension in Delhi involving 5537 individuals (3050 urban and 2487 rural residents) demonstrated that 25% and 29% prevalence of Hypertension among males and females respectively in urban Delhi and 13% and 10% in rural Delhi.

Subburaj V K health secretary of Tamilnadu (2008) reports that 36 lakh people were examined in 3392 camps nearly 1.1 lakh persons were suffering from Hypertension.

The Hindu newspaper (2011) report revealed that in Coimbatore out of 100 people 10 will have high blood pressure and may not show any symptom. It is estimated that 25% of the population in the cities and 10% in rural areas in India suffer from Hypertension.

Hort ford hospital (2008) report revealed that the uses of garlic on average can help systolic blood pressure drop by 16 mmHg and diastolic blood pressure by 9mmHg.

Medical herbalism (2008) report revealed that garlic is used as a antihypertensive, carminative, aphrodisiac, expectorant, and stimulant. It possess anti-inflammatory, anti arthritic, hypolipidemic, anticoagulant, hypoproteinemic, hypolipidemic, anticoagulant, hypoproteinemic, hypocholesteremic, antibacterial, antifungal, and hypoglycaemic action.

The food pharmacy (2010) report revealed that garlic has achieved a legendary reputation as an antihypertensive medication. It has been used in China for centuries for that purpose, and the Japanese government officially recognises garlic as a blood pressure depressor.

Health encyclopaedia (2010) report revealed that eating a clove of garlic early in the morning before breakfast keep a person become healthy and free from many diseases. The people who used garlic on daily basis in their diet, there was less on the risk of Hypertension.

People with high blood pressure were taking garlic supplements daily for up to 12 weeks, their blood pressure levels drop significantly. In some cases, the drop was as much as that seen in patients taking drugs such as beta blockers and ACE inhibitors. The research involved pooling results from 11 studies of garlic preparations and found that they reduce blood pressure more than inactive placebo pills in people with high blood pressure. Garlic food preparations reduce systolic blood pressure by 8-4 mmHg and diastolic pressure by 7-3 mmHg.

Pawar, et.al (2005) conducted a prevalence study of Hypertension among elderly women in slums of Surat city. This prevalence study was conducted among 105 elderly women residing in Surat city. The study results revealed that the total prevalence of Hypertension was found to be 73.3% and the new case detection rate was found to be 38%, out of 105 respondents 77 were found to be suffering from Hypertension. Among these 40 are more have ever been diagnosed.

Karin Ried, et.al., (2008) conducted a systematic review and meta-analysis search on effect of garlic on blood pressure. They searched the MEDLINE and EMBASE databases for studies published between 1955 and 2007. Eleven of 25 studies included in the systematic review. The results revealed that a mean decrease of 8.4 ± 2.8 mm Hg for Systolic Blood Pressure in the garlic group compared to placebo. The study concluded that garlic preparations are superior to placebo in reducing blood pressure in individuals with Hypertension.

Rashid & Khan (2005) postulated that mechanism of antihypertensive action of garlic is due to its prostaglandin like effects which decreases peripheral vascular resistance. The gamma-glut amyl cysteines are the compounds in garlic that lower blood pressure, as indicated by their ability to inhibit angio-tensin converting enzyme in invitro. And also it is thought to reduce blood pressure by causing smooth muscle relaxation and vasodilation by activating the production of endothelium derived relaxation factor.

In view of the above mentioned statistical data, studies and also during community field experience the investigator found that more number of hypertensive clients were in Vazhukkuparai village at Coimbatore. Many article reports provide generalized statement on the benefits of Garlic Powder in various disorders. Henceforth the investigator was motivated to create empirical evidence on the efficacy of Garlic Powder administration in Hypertension. This will also provide sound scientific base principle for improving the Garlic Powder administration as a nursing intervention for reducing the blood pressure. This will help to reduce the complications of uncontrolled blood pressure and also reduce mortality and

morbidity rate of Hypertension. So considering these factors the investigator personally felt that there is a need to conduct a study on effectiveness of Garlic Powder in reducing the level of blood pressure among clients with Hypertension.

"A single bulb of garlic a day, keep disease away"

-The Hindu

Statement of the Problem

A Study to Evaluate the Effectiveness of Garlic Powder in Reducing the Blood Pressure among Clients with Hypertension in a Selected Rural area at Coimbatore.

Objectives of the Study

- To assess the level of blood pressure among clients with Hypertension.
- To evaluate the effectiveness of Garlic Powder in reducing the level of blood pressure among clients with Hypertension.
- To determine the association between the level of blood pressure among clients with Hypertension with their selected demographic variables.

Hypotheses

- H_1: There will be a significant difference between the mean pre and post-test level of blood pressure among clients with Hypertension.
- H_2: There will be a significant association between the level of blood pressure among clients with Hypertension with their selected demographic variables.

Operational Definitions

Effectiveness

It refers to the outcome of Garlic Powder in terms of reducing the level of blood pressure among clients with Hypertension.

Garlic Powder

It refers to the powder which prepared from dried garlic and it acts on level of blood pressure.

Blood Pressure

It refers to force of blood against the wall of the arteries. It is measured by mmHg. The normal blood pressure is 120/80mmHg.

Hypertension

It refers to the increased level of blood pressure, which have systolic blood pressure is more than 140mmHg and diastolic blood pressure is more than 90mmHg. In this study, it includes the measurement of mild (140/90-159/99 mmHg) and moderate (160/100-179/109 mmHg) Hypertension.

Assumptions

- Blood pressure will vary based on the demographic variables among clients with Hypertension
- Garlic Powder has an effect on level of blood pressure

Delimitations

- The study is delimited to clients with Hypertension between 40-60 years in selected rural area at Coimbatore.
- The data collection is delimited to period of 6weeks

Projected Outcomes

- The study will help the nurses to assess the changes in level of blood pressure among clients with Hypertension
- The study will help the nurses to identify the effectiveness of Garlic Powder on level of blood pressure
- The study will help the nurses to adopt the use of Garlic Powder as a complementary therapy to reduce level blood pressure among clients with Hypertension.
- The findings of the study will help the nurses to motivate the clients to use Garlic Powder as a complementary therapy to reduce the level of blood pressure among clients with Hypertension.

CHAPTER II

REVIEW OF LITERATURE

Review of literature is an important step in the development of any research project. It helps the investigator to analyze what is already known about the topic and to describe methods of inquiry used in earlier work including the success and short coming. In the present study an extensive literature survey has been made to collect the facts and findings over the years to select work.

This chapter deals with the information collected with relevance to the present study from published materials. These publications were the foundation to carry out the research work. Highly extensive review of literature pertaining to research topic was done to collect maximum information for laying foundation of the study.

Review of literature was organized as follows:

- Studies Related to Prevalence and Incidence of Hypertension
- Studies Related to Effectiveness of Garlic
- Studies Related to Effectiveness of Garlic in Reducing the Blood Pressure among Clients with Hypertension

Studies Related to Prevalence and Incidence of Hypertension

Zachariah.M.G., et.al.,(2003) conducted a cross-sectional study on prevalence, correlation and awareness , treatment and control of Hypertension in a middle aged urban population in Kerala. Cross-sectional survey was used to select middle-aged

subjects (163 men, age range 40-60 years) in urban Trivandrum city. Blood pressure was measured by using a standardized mercury column sphygmomanometer. The study results revealed that the overall prevalence of Hypertension was 54.3% (men 56.3%, women 52.3%) among urban population in Trivandrum city.

Ferrara.L. A. et.al., (2004) conducted population based study on arterial Hypertension increases left ventricular mass: role of tight blood pressure control among clients with Hypertension. Population based survey was used to select the subjects in the age range 40-60 years were invited to undergo an M-mode echocardiography examination. Among them 294 were normotensive, 110 were hypertensive but had never taken anti hypertensive drugs, 47 hypertensive's on drugs had uncontrolled Hypertension. The study findings revealed that hypertensive patients with blood pressure values at levels similar to those in normotensive for long period do not increase their left ventricular mass in comparison to subjects with normal blood pressure levels.

Singh., R.B., et.al.,(2005) conducted a prevalence study on prevalence, control strategies in developing countries for prevention of Hypertension and stroke in Asia. The prevalence of Hypertension according to new criteria (>140/90 mmHg) varies between 15-35% in urban adult population of Asia. In rural populations, the prevalence is two to three times lower than in urban subjects. In Australia, Newzealand and Japan, lower social class is a risk factor for Hypertension and stroke.

Gupta. R., et.al.,(2006) conducted a meta-analysis study on epidemiology of Hypertension in India. Meta analysis of 50 years prevalence rates and blood pressure

trends were taken. Studies since 1959 used WHO guidelines and have shown increasing trend in Hypertension prevalence. Recent studies from Ludhiana (1985) and Jaipur (1995) show that prevalence is 14.08+/-1.1 and 10.99+/- 0.7% respectively. Trend analysis in studies among urban areas (n=10) shows significant increase in Hypertension prevalence. Studies in rural areas (n=14) also show a significant increase in Hypertension prevalence. The study concluded that in India Hypertension is emerging as a major health problem more so in urban than in rural subjects**.**

Sajith kumar.et.al.,(2006) conducted a cross sectional study on prevalence and risk factor of Hypertension among 100 hypertensive clients in age group 40-60 years in MCH, Trivandrum. The study period were 4 weeks, the tool used for the study was pre-tested questionnaire listing various factors taken into consideration for the study. The study concluded that majority of hypertensives were males, majority of hypertensive had high educational and socioeconomic status and a sedentary pattern of life.

Thrift., AG.et.al.(2006) conducted a population based study on gender-specific effects of caste and salt on Hypertension in poverty in Andhra Pradesh. In 1479 samples were selected from adults living in 12 hamlets in rural Andhra Pradesh. Blood pressure, weight, height, waist and hip girth were measured for the samples. The results revealed that the mean age was 39.7 years, 46.2% were men, and 11.4% were under weight. Belonging to a forward caste and salt intake were associated with a greater risk of Hypertension in both men and women.

Midha., et.al.(2009) conducted a community based cross sectional study in four randomly selected areas in urban and rural parts of Lucknow district. Two stage stratified random sampling technique was used to select 800 subjects, 400 from urban area and 400 from rural area of Lucknow district. The study results revealed that the prevalence of Hypertension was 32.8% in urban population and 14.5% in rural population.

Pednekar, M.S., et.al.,(2009) conducted a cohort study on association of blood pressure and cardiovascular mortality in India. A total of 148,173 individuals aged > or=35 years were recruited in Mumbai in India between the years 1991-1997. Clinical history and anthropometric data were obtained and Hypertension categorised by using US 7^{th} Joint National Committee guidelines into normal, pre Hypertension, stage-I and stage-II. These subjects were followed to ascertain vital status from 1997 to 2003. The study result revealed that at baseline Hypertension was in 47.3% in men and 35.9% in women. In total 13,261 persons died during were matched and coded using international classification of disease-10, compared to those with normal blood pressure, all cause mortality was significantly greater in stage-II. Subjects with stage-II Hypertension have greater risk of death form Hypertension and heart disease, Ischemic heart disease and cardio vascular disease.

Bhardwaj., R. et.al.(2010) conducted a population based prevalence study on prevalence, awareness and control of Hypertension in rural communities of Himachal Pradesh. Population based survey was done in three villages of Himachal Pradesh of different districts. Total 1092 adults of >= 18 years of age were examined, 392 were found to have Hypertension and 267 had the blood pressure in pre Hypertension

range. The study result revealed that only one fifth of hypertensive person were aware of their disease and only fifth of these had their blood pressure under control.

Deji., et.al., (2010) conducted a cross-sectional study on prevalence of Hypertension among 30-70 years old citizens of Lhasa, Tibet China. A total of 371 Tibetan men and women aged between 30- 70 years old were included by using simple random sampling technique. Standard questionnaire filled by the participants and blood pressure was measured; body mass index, waist and hip circumference ratio were calculated. The study results revealed that over all prevalence rate of Hypertension was 40.2% (36.6% in men vs. 40.9% in women, P=0.921). The age-standardized prevalence of Hypertension was 37.6%, awareness rate of Hypertension was 70.9%, treatment rate of Hypertension was 38.1% and control rate of Hypertension was 2.4%. The study concluded that there was a high prevalence rate and poor control rate of Hypertension among 30-70 years old citizens of Lhasa.

Gupta. R., et.al.,(2011) conducted a population based study on high prevalence and low awareness on treatment and control of Hypertension in Asian Indian women aged 35- 70 years in four urban and five rural locations. Stratified sampling technique was performed to select 4608 samples. Demographic details, medical history, diet, physical activity, anthropometry and blood pressure were recorded. Age- adjusted prevalence of Hypertension was observed in 1672 women (39.2%) (rural:746, 31.5%, urban:926, 48.2%) Hypertension awareness noted in 727 women (42.8%) more in urban (529, 56.8%) than in rural (198, 24.6%) of these 38.6% of the women were on treatment and of those treated, controlled blood pressure was observed in 21.5 %. The

study results revealed that high prevalence of Hypertension in middle aged Asian Indian women, very low awareness on treatment and control status are observed.

Sing. R.,B, et.al.,(2011) conducted a cross-sectional study on prevalence of risk factors for pre Hypertension and Hypertension in five Indian cities. Total 6940 subjects were screened (3507 men, 433 women) from cities located in five corners of India (Calcutta n= 900, Nagpur n=894, Mumbai n= 1542, Thiruvananthapuram n=1602, Moradabad, n= 2002). Men and women over 25 years of age were included in this study. Pre Hypertension (blood pressure 130-139/85-89 mmHg) and Hypertension (blood pressure> or= 140/90 mmHg) were diagnosed. The study result revealed that prevalence of pre Hypertension and Hypertension, respectively was significantly greater in south Indian and west Indian compared to north Indian and east Indian subjects with preHypertension and Hypertension were older, had a high body mass index, central obesity and a sedentary lifestyle.

Studies Related to Effectiveness of Garlic

Banerjee. S.K.et.al., (2002) conducted a study on effect of garlic on cardiovascular disorders. Effectiveness of garlic in cardiovascular disease was more encouraging in experimental studies which prompted several clinical trials. Many clinical trials showed a positive effect of garlic on almost all cardiovascular diseases.

Hassan Z.M., et.al., (2003) conducted an experimental study on immunomodulartory affect of R10 fraction of garlic extract on natural killer Activity. Garlic used in this study was freshly prepared, and their effectiveness in augmenting natural killer activity was evaluated. Administration of 20mg/kg produced an

optimum augmentation of natural killer activity. A glycoprotein with MW of about 14kDa was isolated form garlic extract and its activity was assessed. The study result revealed that fraction residue 10 (R10) of garlic extract partially purified by ultra filtration and further purified by chromatography could include a resistance to the growth of spontaneous mammary carcinoma.

Warshafsky, s. et.al., (2003) conducted a Meta analysis search on effect of garlic on total serum cholesterol. Trials were selected for randomized and placebo controlled and if at least 75% the clients had cholesterol levels greater that 5.17 mmol/l (200mg/dl). The client treated with garlic consistently showed a decrease in total cholesterol levels compared with those receiving placebo. The study concluded that meta-analysis of the controlled trials of garlic to reduce hypercholesterolemia showed a significant reduction in total cholesterol levels.

Koscielny.J., et.al.,(2004) conducted a randomized double-blind, placebo-controlled clinical trial study on the anti atherosclerotic effect of garlic. The plaque volumes in both carotid and femoral arteries of 152 probationers were determined by B-mode ultrasound. Continuous intake of high dose of Garlic Powder draggers reduced significantly the increase in arteriosclerotic plaque volume by 5-18% or even effected a slight regression within the observational period of 48 months.

Sengupta.A.et.al.,(2004) conducted a study on garlic vegetables in cancer prevention. The allium genus approximately 500 species. Commonly used garlic vegetables include garlic, onion, leeks, chives scallions which are used all over the world different delicacies. Epidemiological studies have shown that higher intake of

garlic products is associated with reduced risk of several types of cancers. The study concluded that organosulfur compound in allium vegetables are considered to be responsible for the beneficial effects of cancer prevention

Amin M., et.al., (2005) conducted an experimental study on heat stable antimicrobial effect of garlic. Garlic is compared with 23 strains of fungi and bacteria, water extract of garlic, shallot and onion bulbs were prepared. Each extract was studied in different forms for their antimicrobial activity viz., fresh extract dry extract and autoclaved extract. Fresh extract of garlic showed greater antimicrobial activity as compared to similar extracts of onion and garlic. The study result revealed that antimicrobial effect of fresh garlic extract is effective than shallot and onion extract.

Lissiman.M E. et.al., (2009) conducted a meta- analysis search on garlic for the common cold. Randomized controlled trial of common cold prevention and treatment comparing garlic with placebo, no treatment (or) standard treatment were done. Out of the five trials identified as potentially relevant from the searches, only one trial met the inclusion criteria. 146 volunteer participants to either a garlic supplement (with 180 mg of allium content) or a placebo (once daily) for 12 weeks. The trial reported 65 occurrence of the common cold in the placebo group compared with 24 in the garlic intervention group. The number of days to recovery was similar in both groups. The study concluded that a single trial suggested that garlic may prevent occurrence of the common cold

Wang. X et.al., (2010) conducted a study on aged garlic extract induce inhibition on gastric cancer cell growth in vitro and in vivo at China. The study

concluded that investigation of serum superoxide dismutase, glutathione peroxidise, interlewkin-2 and the increased indices of spleen and thymus indicated that the anticancer action of aged black garlic extract may be partly due to its antioxidant and immune-modulative effects.

Miroddi. M., et.al.,(2011) conducted a study on potential beneficial effects of garlic in oncohematology analysed literature data on effects of garlic and garlic compounds with conserve as basic information to design clinical approach in oncohematology. Evidence about the effects of main sulphur compounds diallyl sulfids (DAS) diallyl disulfide (DADS), diallyl trisulfide (dats), ajoene and s-allyl mercapto cysteine (SAMC) in oncohematology was described. The study concluded that the biological activities of garlic compound and support a rationale for the use of substances such as DAS, DADS, DATS and ajoene as promising anticancer agents in oncohematology.

Studies Related to Effectiveness of Garlic in Reducing the Blood Pressure among Clients with Hypertension

Mcmohan F.G., et.al., (2003) conducted a pilot study on can garlic lower blood pressure?. A popular garlic preparation containing 1.3% allicin at a large dose (2400 mg) was evaluated in this study in nine patients with rather severe Hypertension. Sitting blood pressure fell 7/16 mmHg peak effect approximately few hours after the dose, with a significant decrease in diastolic blood pressure from 5-14 hours after the dose. The study result revealed that garlic preparation can reduce blood pressure.

Paul Bergner. (2004) conducted a Meta analysis search on garlic and Hypertension. The data from 415 patients from eight controlled trials of garlic for high blood pressure were obtained. The typical dose of 600-900 mg of Garlic Powder per day for four weeks was administered. The study result revealed that a typical drop of 7.7 mmHg of systolic blood pressure and 5mmHg of diastolic blood pressure were observed.

Silagy C.A et.al., (2004) conducted a Meta analysis search on effect of garlic on blood pressure. Randomized controlled trials of garlic preparations were used for 4 weeks in duration. Eight trials were identified all using same dried Garlic Powder preparation with data from 415 subjects included in the analysis. Only three of the trials were specifically conducted in hypertensive subjects, and many had other methodological shortcomings. Of the seven trials that compared the effect of garlic with that of placebo, three showed a significant reduction in systolic blood pressure and four in diastolic blood pressure. The study concluded that Garlic Powder preparation may be some clinical use in subjects with mild Hypertension.

Edward.Q.T. et.al.,(2005) done a literature review from professional journals , abstracts, natural therapy books, and the world wide web on what's cooking with garlic. Is this complementary and alternative medicine for Hypertension. The literature review concluded that garlic is widely used throughout the world as a complementary and alternative medicine. It is one of the popular herbal products sold in the United States.

Reinhart. K.M.,et.al.,(2008) conducted a meta-analysis search on effect of garlic on blood pressure in patients with and without systolic Hypertension. Ten trials were included in the analysis, 3 of these had patients with elevated systolic blood pressure, garlic reduced systolic blood pressure by 16.3 MmHg and diastolic blood pressure by 9.3 MmHg compared with placebo in patients with elevated systolic blood pressure. This meta-analysis suggests that garlic is associated with blood pressure reduction in patients with an elevated systolic blood pressure although not in those without elevated systolic blood pressure.

Fredi alicajic.(2009) conducted an experimental study on Hypertension and garlic. Thirty patients with mild and moderate arterial Hypertension were selected with the age of 41-64 years (17 men and 13 women) had taken 3 gloves about 10 gram of garlic daily, during one month period. The study result reveals that in case of 22 patients, 73.3% had reduction in average systolic blood pressure for 9.52% and the average diastolic blood pressure for 10.42%. The study concluded that garlic was a very good diet factor in the prevention and treatment of Hypertension.

Anjupavulose. (2010) conducted an experimental study on Hypertension and garlic administration among hypertensive patients in Kaduthuruthy Co-operative Hospital, Kottayam. Quasi experimental design was adopted and purposive sampling technique was used to select the 20 subjects in experimental group and 20 subjects in control group. The experimental group , 20 patients received intervention on 10 grams of cooked garlic for 21 days. In control group 20 patients did not receive intervention. The study results revealed that the mean difference in systolic blood pressure among hypertensive patients in experimental group was significantly more than control group

t=2.982 significant at p=0.005 level and the mean difference in diastolic blood pressure was significantly more than control group t=2.867 significant at 0.001 level.

Stephen Daniels. (2010) conducted a double blind parallel randomised placebo-controlled trial on aged garlic shows blood pressure improvement benefits. The study used supplementation with four capsules of aged garlic extract providing 960 mg containing 2.4 mg (S-allyl cysteine) daily for 12 weeks. The results shows that aged garlic extract is regarded as safe as and more tolerable than Garlic Powder and superior to raw or cooked garlic in relation to its anti hypertensive properties.

CONCEPTUAL FRAME WORK

A conceptual frame work is the precursor of the theory. Conceptual framework plays several interrelated roles in progress of sciences their overall purpose is to make scientific studies meaningful and generalizable.

Polit and Hungler (1995) states that a conceptual framework is the interrelated concepts or abstractions that are assembled together in the relevance to the common theme. It is a device that helps to stimulate research and extension of knowledge by providing both directions and impetus.

The present study aims to evaluate the effectiveness of Garlic Powder in reducing the blood pressure among clients with Hypertension. The conceptual frame work for this study is based on modified Marita Titler's (2004) effectiveness research model. Effectiveness indicates the benefits of health care that are achieved under ordinary circumstances for clients. The Titler's model explains about client outcomes of acute care services are influenced by characteristics of the client, their clinical conditions, the treatments they receive and the context in which care is delivered. The model was developed to test the relationship of these variables to multiple outcomes.

Clinical Condition of Client:

A clinical condition is defined by the medical and nursing diagnosis and severity of illness. The medical diagnoses are typically coded in the medical record

abstract, using the international classification of disease-9 diagnostic codes to identify the principle and secondary medical diagnoses of each client. NANDA is used in many institutions to document the nursing diagnosis. Severity of illness defined as the extent of physiological decompensation or organ system loss of function.

In this study severity of illness was assessed by checking client's blood pressure by using sphygmomanometer.

Client Characteristics:

Client characteristics (demographics) are usually available from a census system and include gender, date of birth, admission/discharge date, marital status, religion and occupation.

In this study demographic variables are collected from the clients regarding family profile, health history and personal habits. Family profile consist of age, gender, marital status, religion, type of family, educational status, occupational status, type of work, monthly income per capita, working hours per day. Health history consist of height (cm), weight (kg), body mass index (kg/m^2), family history of Hypertension; if yes mention the relationship of the person and Personal habits includes dietary pattern, habit of salt intake, lifestyle practices, do you practice exercise, if yes, mention the type of exercise, do you have leisure time activity, if yes, how do you spent the leisure time by.

Unit / Agency Characteristics:

It includes information about the unit of client is, the nursing staff on the unit and the agency..

In this study the unit of agency is community setting namely vazhukkuparai village.

Treatment:

The treatment that clients receive during the acute episode of care is categorised as medical treatment, nursing interventions and pharmacological treatment. Medical treatments are defined as any medical procedure the clients received during the episode of care. Nursing intervention can be documented by using nursing intervention classification, names and describes intervention that nurses perform. Pharmacological treatments includes medications ordered, medications administered, medications allergies for each client.

In this study the nursing intervention is administration of 900mg of Garlic Powder with 25 ml of skimmed milk before breakfast for 30 days.

Client Outcomes:

Outcomes that are frequently collected in health care institutions are grouped for definitional purposes as adverse incidents, complications and client satisfaction, length of stay and cost per case.

In this study satisfactory change in reduction on level of blood pressure was seen among clients with Hypertension. So the clients are recommended to follow the same treatment in their day-to-day life.

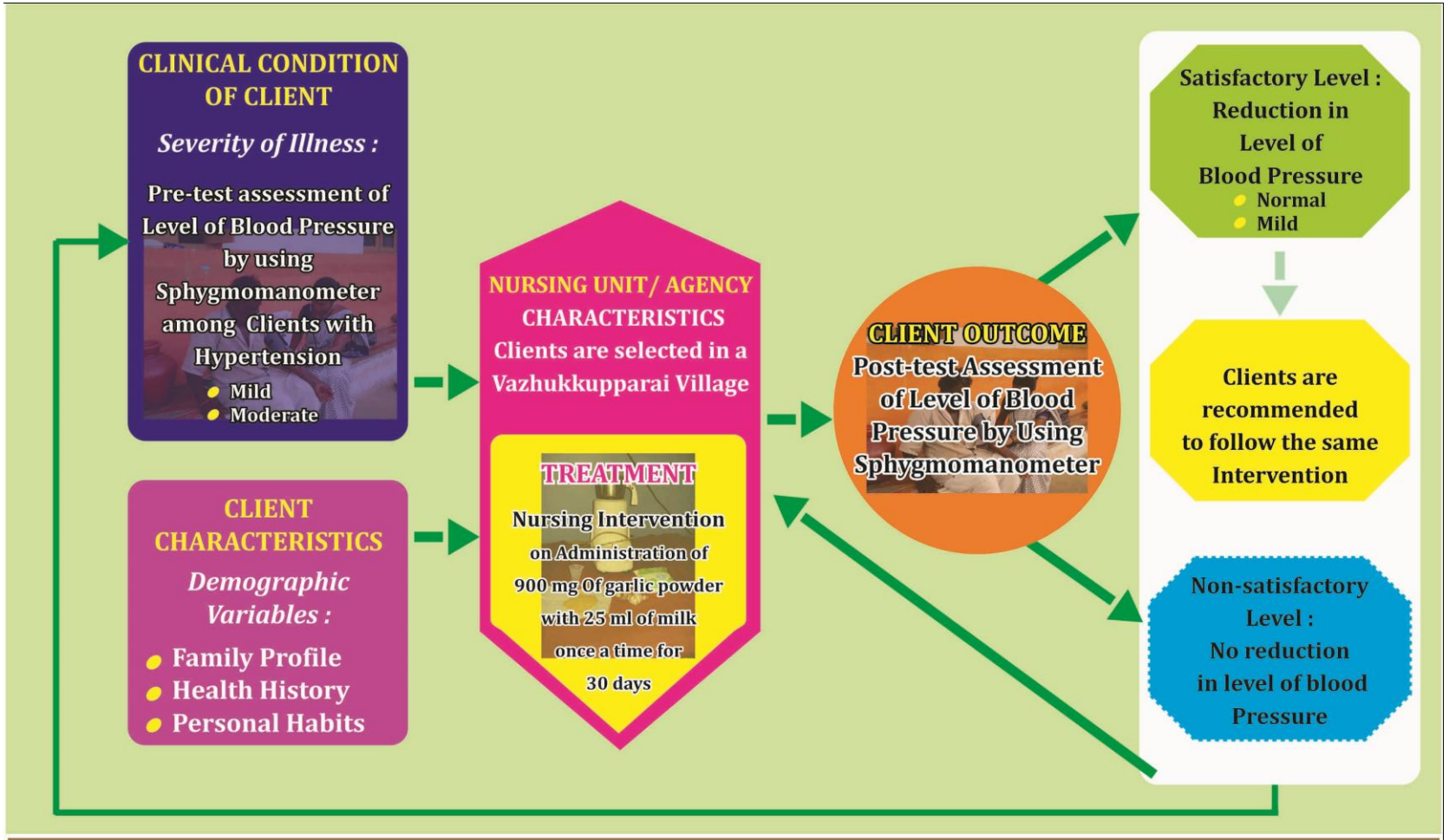

Fig. 1 : Modified Marita Titler et.al Effectiveness Research Model(2004)

CHAPTER III

METHODOLOGY

Research methodology is one of the vital sections of a research. Since the success of any research is mostly dependent upon the methodological issues that are followed in the execution of the research work. The role of methodology consists of procedure and technique for conducting the study.

According to Polit and Hungler (2004) research methodology refers to investigations of the ways of obtaining, organising and analysing data.

The present chapter consists of research design, setting of the study, population of the study, sample, sampling technique and criteria for sample selection, development and description of the tool, scoring procedure, intervention, validity, reliability, pilot study, data collection and plan for data analysis and protection of human rights.

Research Approach

Polit and Hungler. (2004) defined the approach as “a general set of orderly discipline procedure used to acquire information”.

A quantitative approach was used to evaluate the effectiveness of Garlic Powder in reducing the blood pressure among clients with Hypertension.

Research Design

Nancy Burns. (2004) the research design is the blue print for conducting the study that maximizes the control over factors that could interfere with the validity of the findings. It guides the researcher in planning and implementing the study in a way that is most likely to achieve the intended goal.

A pre experimental design (one group pre-test and post-test design) was used to evaluate the effectiveness of Garlic Powder in reducing blood pressure among clients with Hypertension. The diagrammatic representation of research design is given below.

Group	Pre-test	Intervention	Post- test
Study group	O_1	X	O_2

Key:

O_1 = Pre-test assessment of level of blood pressure

X = Intervention on administration of 900 mg of Garlic Powder for 30 days before breakfast

O_2 = Post-test assessment of level of blood pressure

O_2-O_1 = Effectiveness of Garlic Powder Intervention

Variables

A variable is "An attribute of a person or object that varies that is taken on different values". A variable is any phenomenon or characteristic or attribute that changes. Variable are measurable characteristics of a concept and consist of logical group of attributes.

- Independent variable

Independent variable is manipulated and it intends to cause a change in the level of blood pressure.

In this present study the independent variable is administration of Garlic Powder.

- Dependent variable

Dependent variable is that which is hypothesized to depend on or be caused by another variable.

In this present study the dependent variable is level of blood pressure among clients with Hypertension.

- Extraneous variable

Pre-existing characteristics of the entity under investigation, which the researcher simply observes and measure

In this present study age, gender, marital status, religion, type of family, educational status, occupational status, type of work, monthly income per capita (rupees),working hours per day, height(cm), weight(kg), body mass index(kg/m^2), family history of Hypertension, if yes mention the relationship of the person, dietary

pattern, habit of salt intake, lifestyle practices, do you practice exercise, if yes, mention the type of exercise, do you have leisure time activity, if yes, how do you spent the leisure time by are the extraneous variables.

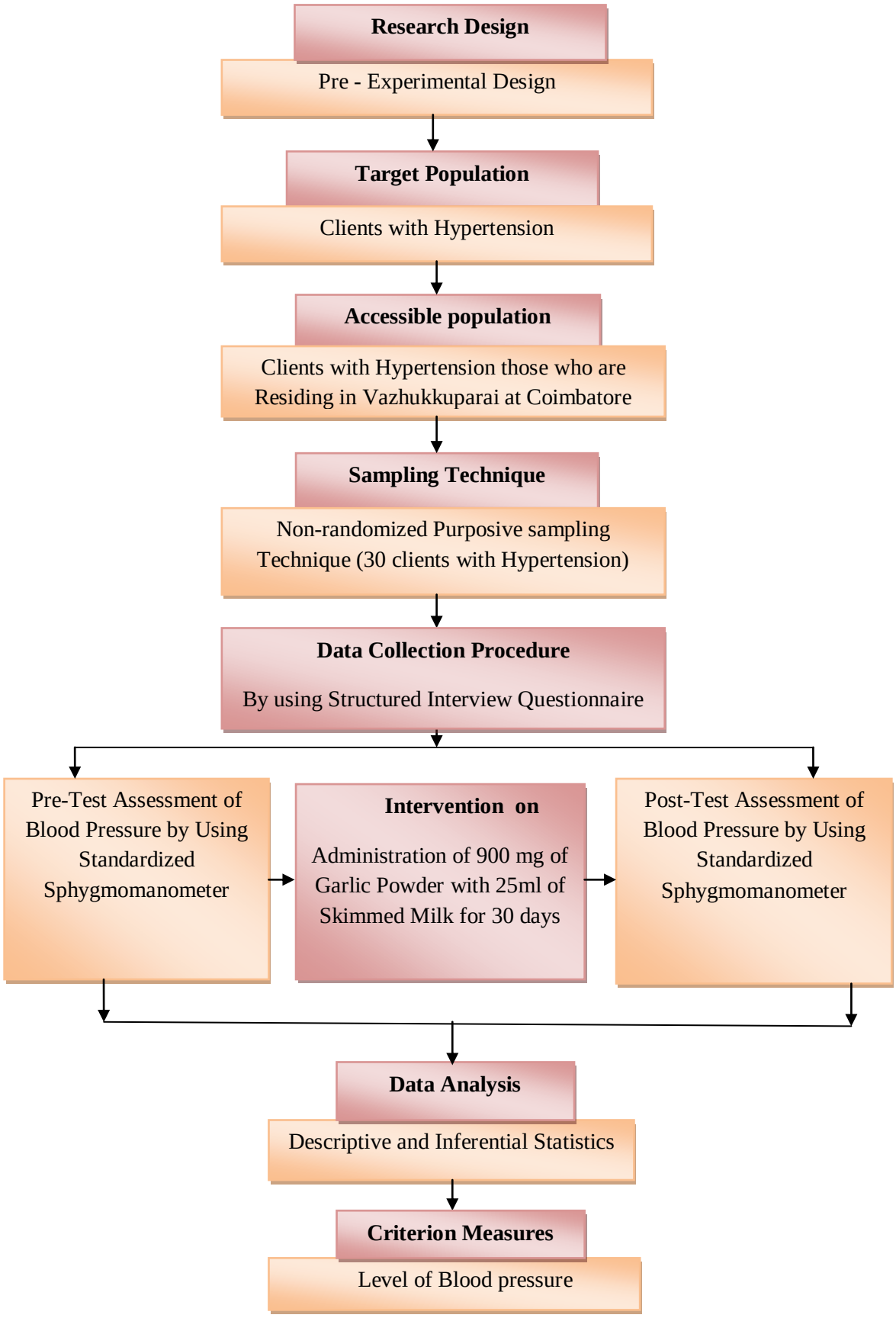

Figure 2: The Schematic Representation of Research Methodology

Setting of the Study

The study was conducted in selected rural area of Coimbatore district. The rural area selected under Arisipalayam primary health centre, namely vazhukkuparai. The selected rural area is situated around 8 kms away from Annai Meenakhi College of Nursing at Coimbatore. The selected rural area comprises of 90% of people belonging to Hinduism and rest of 10% are Christians. The main occupation of the villagers is agriculture and farming. The total population of vazhukkuparai is around 2234. Health care to this village is provided by the primary health centre at Arisipalayam and private hospitals.

Population of the Study

According to Polit and Hungler. (2005) "A population is the entire aggregation of cases in which a researcher is interested".

Target population for this study was clients with Hypertension. The accessible population of the study was 80 clients with Hypertension residing in Vazhukkuparai village.

Sample

According to Polit and Hungler. (2005) the sample consists of a subset of population selected to participate in a research study.

The subjects were selected for the present study was 30 clients with mild and moderate Hypertension in Vazhukuparai at Coimbatore. The total 30 subjects were selected for study group.

Sampling Technique

Sampling technique is the process of selecting a portion of the population to represent to the entire population.

In this present study, the sampling technique adopted was non-probability purposive sampling method. The investigator has done survey for 2days and identified the subjects in vazhukkuparai village. 30 subjects were selected based on sampling criteria.

Criteria for Sample Selection

Inclusion Criteria

- Clients with age of 40-60 years
- Both genders
- Clients Who are willing to participate in the study
- Clients who can know and understand Tamil
- Clients who are not taking anti hypertensive drug

Exclusion Criteria

- Clients who have defects in speech and hearing
- Clients who have cardiac disorders and diabetes mellitus with Hypertension
- Clients who have severe Hypertension (180/110 and above mmHg).
- Clients who are taking anti tuberculosis drug
- Clients who are taking contraceptive pills

Development of the Tool

Treece and Treece (1960) emphasized that the instrument in research should as far as possible be the vehicle that would best obtain data for drawing conclusion.

The research instrument was developed in English after extensive review of literature and expert opinion and translated in Tamil.

Description of the Tool

The tool consists of 2 parts.

Part I: It consists of demographic variables that includes 3 sections

a. Family profile: It consists of age, gender, marital status, religion, type of family, educational status, occupational status, type of work, monthly income per capita, working hours per day
b. Health history: It consists of height (cm), weight (kg), body mass index (kg/m^2), family history of Hypertension; if yes mention the relationship of the person.
c. Personal habits: which includes dietary pattern, habit of salt intake, lifestyle practices, do you practice exercise, if yes, mention the type of exercise, do you have leisure time activity, if yes, how do you spent the leisure time by.(Appendix D, E)

Part II: Sphygmomanometer was used to check blood pressure.

Scoring Procedure:

Part II: sphygmomanometer was used to check the blood pressure. Mean arterial pressure was calculated and the blood pressure was categorised by

Type of Hypertension	Blood Pressure Level (mmHg)	Mean Arterial Pressure (mmHg)
Mild Hypertension	140/90 - 159/99	107-119
Moderate Hypertension	160/100 - 179/109	120-132
Severe Hypertension.	180/110 and above	133 and above

Intervention:

Intervention of the present study was Garlic Powder. Before administering Garlic Powder the investigator got the consent sign from the subjects and informed regarding Garlic Powder and its benefits on Hypertension. After that the clients were informed to sit in a comfortable place and administered 900mg of Garlic Powder mixed with 25ml of skimmed milk before breakfast.(Appendix G,H)

Validity and Reliability

Content Validity

According to Burns and Groove, (2005) “the validity of an instrument is the determination of the extent to which the instrument reflect the abstract constant that is being examined”.

The contents of the structured interview questionnaire was evaluated by 11 experts including seven nursing experts, two experts in medicine and two dietician who validated the tool regarding adequacy of the content and the sequence in framing of questions. Based on their valid suggestions the instrument was reframed by adding the demographic variables like health history and personal habits.

Reliability

According to Polit and Hungler (2004), reliability refers to "An instrument's reliability is the consistency with which it measures the target attribute".

The stability of an instrument is the extent to which similar results are obtained on two separate administrations. In this present study the reliability of Sphygmomanometer was assessed by test - retest method. r=0.08 level indicate highly reliable.

Pilot Study

Polit and Beck, (2004) denotes that "pilot study is a small-scale version or trial run done in preparation of a major study".

A pilot study was conducted in Meenakshipuram village among 5 clients with Hypertension. The data collection of the pilot study was done for 15 days. Pre-test assessment of blood pressure done on 1st day. On 2nd day administered 900mg of Garlic Powder with 25ml of skimmed milk before breakfast. Post-test assessment of blood pressure done by using sphygmomanometer on 15th day. The purpose of the pilot study was to find out the feasibility of conducting the study. The result of the

pilot study showed that the mean blood pressure level of pre-test was 113.4 and that of post-test was 110 and the mean difference was 3.4. The obtained 't' value was 13.85 significant at 0.05 level. The pilot study results showed that the setting, samples and tool was feasible enough to conduct the main study.

Data Collection Procedure

The data collection procedure was done for a period of 39 days in Vazhukkuparai village, Coimbatore. Permission to conduct the study was obtained from the Deputy Director of Health Services and Medical officer in Arisipalayam primary health centre. The subjects were informed by the researcher about the nature and purpose of the study. Survey was done for 2 days. Blood pressure was checked by using sphygmomanometer for 5 days for the subjects to observe the changes in blood pressure. Pre-test blood pressure assessment was done on 8^{th} day and also written consent obtained from the subjects. Intervention on administration of 900 mg of Garlic Powder was mixed with 25ml of skimmed milk and given before breakfast, it continued for 30 days. The post-test blood pressure assessment was done on 31^{st} day after intervention by using sphygmomanometer.

Schedule of the data collection as follows:

Date	Activities Performed	No of Days
02/08/11 and 03/08/11	Survey	1^{st} and 2^{nd} day
04/08/11 to 08/08/11	Observation of Blood Pressure	5 days (3^{rd}-7^{th} day)
09/08/11	Pre-test	1 day (8^{th} day)
10/08/11 to 08/09/11	Intervention	30 days (9^{th}-38^{th} day)
09/09/11	Post-test	1 day (39^{th} day)

Plan for Data Analysis

The data were analysed by using both descriptive and inferential statistics. The data related to demographic variables are analysed by using descriptive statistics (frequency, percentage). The blood pressure level was assessed by using descriptive measures (mean, standard deviation). The effectiveness of Garlic Powder in reducing blood pressure level was analyzed by using paired ‘t’ test.

Protection of Human Rights

The study was conducted after the approval of research committee of the college. The nature and purpose of this study was explained to the medical officer. The written consent was obtained from the study participants. Assurance was given to the study subjects that the anonymity of each individual would be maintained strictly.

CHAPTER IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of the collected data from 30 clients with Hypertension to evaluate the effectiveness of Garlic Powder in reducing the level of blood pressure among clients with Hypertension.

The purpose of analysis was to reduce the data to a manageable and interpretable form so that the research problem can be studied and tested.

The analysis and interpretation of data of the study are based on data collected through structured interview questionnaire. The results were computed by using descriptive and inferential statistics.

Kerlinger, has defined analysis as “the categorizing, reducing, manipulating and summarizing of data to obtain assures to research hypothesis questions”.

Interpretation defined as examine the results from data analysis, forming conclusions, considering implication for nursing, exploring significance of the finding and suggesting the study.

The study findings are presented in sections as follows:

- Section I: Data on demographic variables of clients with Hypertension.

- Section II: Data on assessment of level of blood pressure among clients with Hypertension.
- Section III: Data on effectiveness of Garlic Powder in reducing the level of blood pressure among clients with Hypertension.
- Section IV: Data on association between the level of blood pressure among clients with Hypertension with their selected demographic variables

SECTION I : DATA ON DEMOGRAPHIC VARIABLES OF CLIENTS WITH HYPERTENSION.

Table: 1

Frequency and Percentage Distribution of Clients with Hypertension in relation to their Selected Demographic Variables.

N=30

S. No.	Demographic Variables	Frequency n	Percentage %
	A. Family Profile		
1	Age in years		
	a) 40-45 years	4	13
	b) 46-50 years	8	27
	c) 51-55 years	4	13
	d) 56-60 years	14	47
2	Gender		
	a) Male	10	33
	b) Female	20	67
3	Marital status		
	a) Married	23	77
	b) Unmarried	0	0
	c) Widow	7	23
	d) Separated	0	0
4	Religion		
	a) Hindu	30	100
	b) Muslim	0	0
	c) Christian	0	0
	d) Others	0	0

Contd....

S. No.	Demographic Variables	Frequency n	Percentage %
5	Type of Family		
	a) Nuclear	20	67
	b) Joint	10	33
	c) Extended	0	0
6	Educational status		
	d) Primary	7	23
	e) Middle	1	3
	f) High school	0	0
	g) Higher secondary	0	0
	h) Collegiate	0	0
	i) Illiterate	22	74
7	Occupational status		
	a) Govt. Employee	0	0
	b) Private employee	1	3
	c) Self employed	17	57
	d) Un employed	12	40
8	Type of work		
	a) Sedentary work	4	13
	b) Moderate work	6	20
	c) Heavy work	20	67
9	Monthly income per capita		
	a) ₹ 1500 - ₹ 2999	24	80
	b) ₹ 3000 - ₹ 4999	6	20
	c) ₹ 5000 - ₹ 9999	0	0
	d) ₹ 10000 and above	0	0

Contd...

S. No.	Demographic Variables	Frequency n	Percentage %
10	Working hours per day		
	a) <6 hours	14	47
	b) 6-8 hours	16	53
	c) 9-11 hours	0	0
	d) >11 hours	0	0
	B. Health History		
11	Body mass index(kg/m^2)		
	a) Under weight	2	6
	b) Normal weight	20	67
	c) Overweight	8	27
	d) Obesity	0	0
12	Family history of Hypertension		
	a) Yes	7	23
	b) No	23	77
13	If yes mention the relationship of the person		
	a) Father	5	71
	b) Mother	0	0
	c) Father and mother	2	29
	d) Others	0	0

Contd...

S. No.	Demographic Variables	Frequency n	Percentage %
	C. Personal Habits		
14	Dietary pattern		
	a) Vegetarian	0	0
	b) Non vegetarian	30	100
15	Habit of salt intake		
	a) During cooking	30	100
	b) During eating	0	0
	c) Without salt	0	0
16	Lifestyle practices		
	a) Smoking	8	22
	b) Alcohol	6	16
	c) Tobacco chewing	11	31
	d) None	11	31
17	Do you practice exercise?		
	a) Yes	0	0
	b) No	30	100
18	Do you have leisure time activity		
	a) Yes	17	57
	b) No	13	43
19	If yes, how do you spent leisure time by—		
	a) Watching television	10	59
	b) Reading books	0	0
	c) Chatting	7	41
	d) Others	0	0

Table 1: Reveals that, regarding age majority of hypertensive clients 14 (47%) belongs to 56-60 years, 4(13%) belongs to 40-45 years, 8(27%) belongs to 46-50 years and 4(13%) belongs to 51-55 years.

Regarding gender, 10(33%) were males and 20(67%) were females.

Regarding marital status majority of hypertensive clients 23(77%) were married and 7(23%) were widow, no one were unmarried and separated.

Regarding religion, all hypertensive clients 30(100%) were belongs to Hindu, no one were in Muslim, Christian and others.

Regarding type of family 20(67%) belongs to nuclear family and 10(33%) belongs to joint family. no one were in extended family.

Regarding educational status, majority of hypertensive clients 22(73%) were illiterate, 7(23%) had primary education and 1(3%) had secondary education. No one had high school, higher secondary and collegiate education.

Regarding occupational status, 17(57%) belongs to self employed, 12(40%) belongs to unemployed and 1(3%) belongs to private employee. No one was in government employee.

Regarding type of work, majority 20(67%) had heavy work, 6(20%) had moderate work and 4 (13%) had sedentary work.

Regarding monthly income per capita, majority 24(80%) belongs to ₹ 1500 - ₹ 2999, 6(20%) belongs to ₹ 3000 - ₹ 4999 and no one were belongs to 5000-9999 and 10000 and above.

Regarding working hours per day, 16(53%) worked for 6-8 hours and 14(47%) worked for <6 hours. No one were worked for 9-11 hours and >11 hours.

Regarding body mass index, 2(6%) had underweight, 20(67%) had normal weigh and 8(27%) had overweight.

Regarding family history of Hypertension, majority of hypertensive clients 23(77%) had no family history and 7(23%) had family history of Hypertension.

Regarding if yes mention the relationship of the person, 5(71%) clients fathers had Hypertension and 2(29%) client's mothers had Hypertension.

Regarding dietary pattern, all hypertensive clients 30(100%) were belongs to non-vegetarian. No one were belongs to vegetarian.

Regarding habit of salt intake, all hypertensive clients 30 (100%) were belongs to during cooking.

Regarding lifestyle practices, 8(22%) had smoking, 6(16%) had alcohol,11(31%) had tobacco chewing and 11 (31%) belongs to none.

Regarding practice of exercise 30 (100%) was not practiced.

Regarding leisure time activity, 17(57%) said yes and 13(43%) had no leisure time activity.

Regarding how you spend leisure time by, 10 (59%) were watching television, 7 (41%) were chatting. No on were belongs to reading books and others.

SECTION II: DATA ON LEVEL OF BLOOD PRESSURE AMONG CLIENTS WITH HYPERTENSION

Table: 2

Frequency and Percentage Distribution of Pre-Test Level of Blood Pressure among Clients with Hypertension

N=30

S.No	Blood pressure level	Classification of Respondents	
		Frequency (n)	Percentage (%)
1.	Normal	0	0
2.	Mild	21	70
3.	Moderate	9	30

Table 2: Reveals that in pre- test out of 30 subjects, most of them 21(70%) had mild Hypertension and 9(30%) had moderate Hypertension.

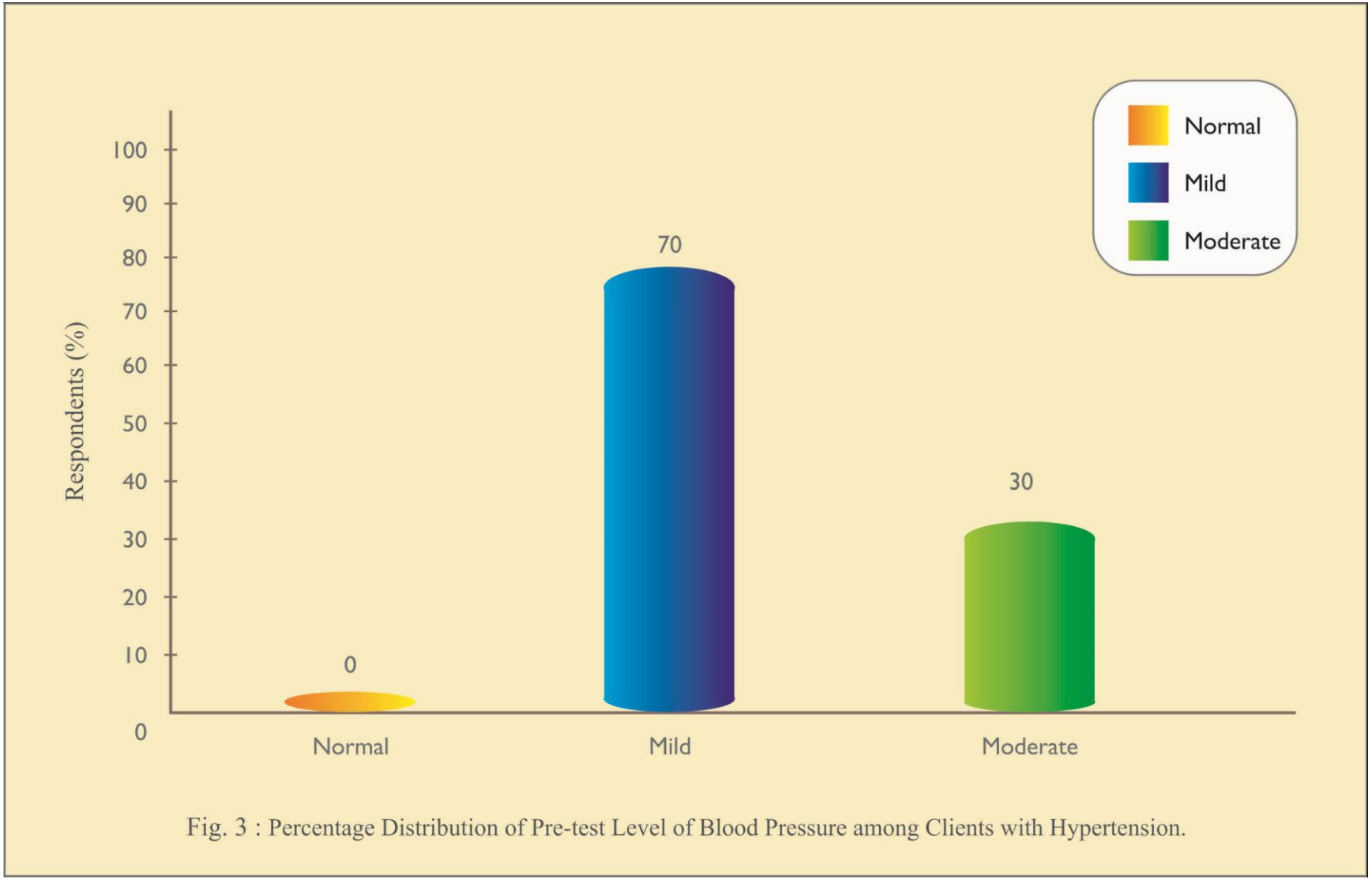

Fig. 3 : Percentage Distribution of Pre-test Level of Blood Pressure among Clients with Hypertension.

SECTION III: DATA ON EFFECTIVENESS OF GARLIC POWDER IN REDUCING THE LEVEL OF BLOOD PRESSURE AMONG CLIENTS WITH HYPERTENSION

Table: 3.1

Frequency and Percentage Distribution of Pre-test and Post-test Level of Blood Pressure among Clients with Hypertension

N=30

S.No	Level of Blood Pressure	Classification of Respondents			
		Pre-test		Post-test	
		Frequency n	Percentage %	Frequency n	Percentage %
1.	Normal	0	0	10	33
2.	Mild	21	70	20	67
3.	Moderate	9	30	0	0

Table 3.1: reveals that out of 30 samples, most of them 21(70%) had mild Hypertension and 9(30%) had moderate Hypertension in pre-test and in post-test, 10(33%) had normal blood pressure and 20(67%) had mild Hypertension.

It was inferred that, most of the hypertensive clients had mild Hypertension in pre-test and most of the mild hypertensive clients had normal blood pressure in post-test.

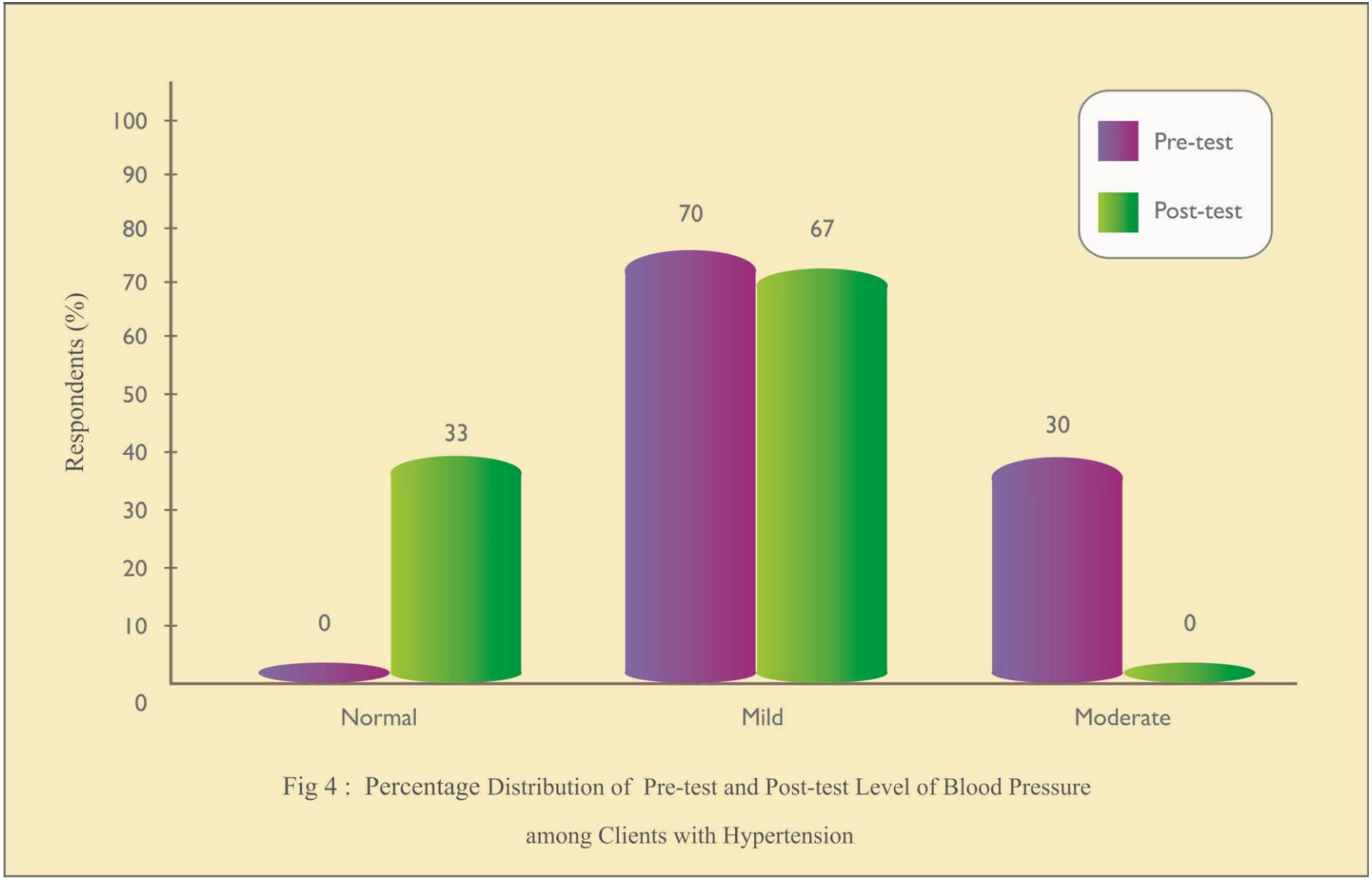

Fig 4 : Percentage Distribution of Pre-test and Post-test Level of Blood Pressure among Clients with Hypertension

Table: 3.2

Comparison of Pre-Test and Post-Test level of blood pressure among Clients with Hypertension.

N=30

S. No.	Mean Arterial Blood Pressure Level (mmHg)	No. of Respondents		d
		Pre-test	Post-test	
1	97	0	3	3
2	100	0	1	1
3	103	0	9	9
4	107	0	9	9
5	110	12	5	7
6	113	3	3	0
7	117	6	0	0
8	120	5	0	0
9	123	4	0	0

Table 3.2: Reveals that in pre-test 12 clients had the mean arterial blood pressure of 110mmHg, 3 clients had 113mmHg, 6 clients had 117 mmHg, 5 clients had 120mmHg and4 clients had 123mmHg. In post-test 3 clients had the mean arterial blood pressure level of 97 mmHg, 1 client had 100mmHg, 9 clients had the 103mmHg, 9 clients had 107 mmHg, 5 clients had 110mmHg and 3clients had 113 mmHg. It was inferred that in pre-test most of the clients were had mild and moderate Hypertension and in post-test most of them had normal blood pressure and mild Hypertension. Hence the stated hypothesis (H_1) was accepted.

H1: There will be a significant difference between pre and post-test blood pressure among clients with Hypertension. It was inferred that the Garlic Powder in reducing the blood pressure level on clients with Hypertension was effective.

Table 3.3

Mean Standard Deviation, Mean Difference and 't' Value of Pre-Test and Post-Test level of Blood Pressure among Clients with Hypertension.

N=30

S.No	Aspects	Mean	Standard Deviation	Mean Difference	't' Value
1	Pre-test	115.1	4.89	15.7	11.98*
2	Post-test	99.4	8.82		

*- significant at P<0.05 level

Table 3.3: Reveals that the mean pre-test blood pressure score was 115.1 and post-test score was 99.4, it was lower than the pre-test. The standard deviation of pre-test score was 4.89 and in post-test score were 8.82. The mean difference was 15.7. The obtained 't' value was 11.98, it was significant at p<0.05 level. Hence the stated hypothesis (H_1) was accepted.

H_1: There will be a significant differencebetween the mean pre and post-test level of blood pressure among clients with Hypertension. It was inferred that the Garlic Powder in reducing the level of blood pressure on Hypertension was highly effective.

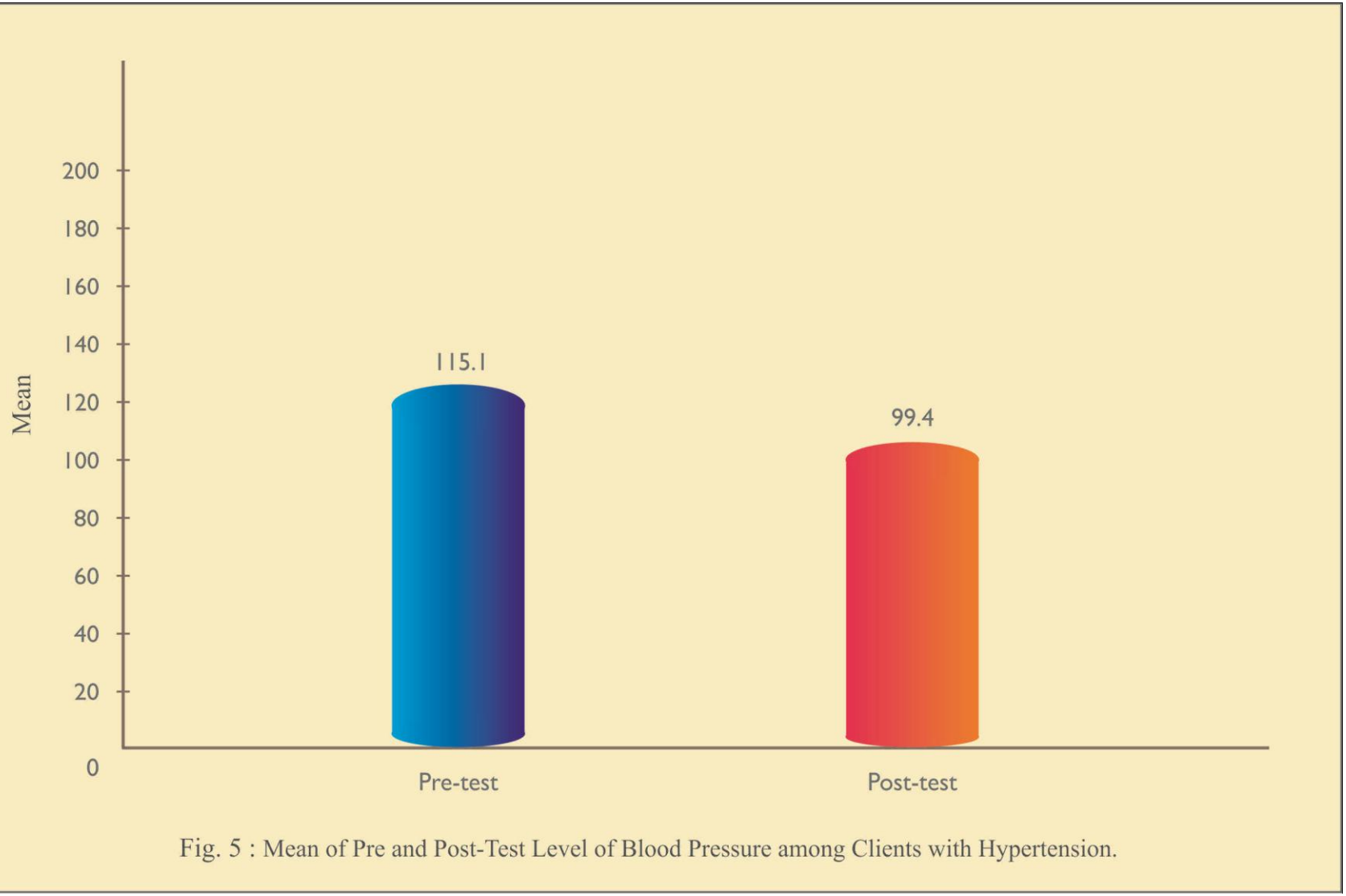

Fig. 5 : Mean of Pre and Post-Test Level of Blood Pressure among Clients with Hypertension.

SECTION IV: DATA ON ASSOCIATION BETWEEN THE LEVEL OF BLOOD PRESSURE AMONG CLIENTS WITH HYPERTENSION WITH THEIR SELECTED DEMOGRAPHIC VARIABLES.

Table 4.1

Frequency, Percentage Distribution and $\chi 2$ Value of Pre-test Level of Blood Pressure among Clients with Hypertension with their Selected Demographic Variables.

N=30

S.No.	Demographic Variables	Mild Hypertension		Moderate Hypertension		χ^2 Value
		n	%	n	%	
	A. Family profile					
1	Age in years					
	a) 40-45 years	4	13	0	0	8.57*
	b) 46-50 years	8	27	0	0	df=3
	c) 51-55 years	2	7	2	7	
	d) 56-60 years	7	23	7	23	
2	Gender					
	a) Male	6	20	4	13	0.71
	b) Female	15	50	5	17	df=1
3	Marital status					
	a) Married	18	60	5	17	3.2
	b) Widow	3	10	4	13	df=3
4	Educational status					
	a) Primary	7	23	0	0	4.67
	b) Middle	1	3	0	0	df=5
	c) Illiterate	13	44	9	30	

Contd..

S.No.	Demographic Variables	Mild Hypertension		Moderate Hypertension		χ^2 Value
		n	%	n	%	
5	Occupational Status					
	a) Private Employee	1	3	0	0	3.90
	b) Self Employed	14	47	3	10	df=3
	c) Unemployed	6	20	6	20	
6	Type of work					
	a) Sedentary work	4	13	0	0	6.42*
	b) Moderate work	6	20	0	0	df=2
	c) Heavy work	11	37	9	30	
7	Monthly income per capita					
	a) ₹ 1500 - ₹ 2999	17	57	7	23	0.04
	b) ₹ 3000 - ₹ 4999	4	13	2	7	df=3
8	Working hours per day					
	a) <6 hours	8	27	6	20	2.06
	b) 6-8 hours	13	43	3	10	df=3
	B. Health history					
9	Body mass index(kg/m^2)					
	a) Underweight	0	0	2	7	5.84
	b) Normal weight	16	53	4	13	df=3
	c) Overweight	5	17	3	10	
10	Family history of Hypertension					
	a) Yes	6	20	1	3	1.07
	b) No	15	50	8	27	df=1

Contd.,

S.No.	Demographic Variables	Mild Hypertension		Moderate Hypertension		χ^2 Value
		n	%	n	%	
11	If yes, mention the relationship					
	a) Father	4	57	1	14	0.78
	b) Father and mother	2	29	0	0	df=3
12	Lifestyle practices					
	a) Smoking	5	14	3	8	0.38
	b) Alcohol	4	12	2	6	df=3
	c) Tobacco chewing	8	22	3	8	
	d) None	8	22	3	8	
13	Do you have leisure time activity					
	a) Yes	13	43	4	13	0.78
	b) No	8	27	5	17	df=1
14	If yes, how do you spent leisure time by					
	a) Watching television	9	53	1	6	2.67
	b) Chatting	4	23	3	18	df=3

* Significant at $p<0.05$ level

Table 4.1: Reveals that in pre-test, regarding age 4(13%) hypertensive clients were in the age group of 40-45 years had mild Hypertension. Hypertensive clients were in the age group of 46-50 years 8(27%) had mild Hypertension, 2(7%) had moderate Hypertension and the age group of 56-60 years 7(23%) had mild

Hypertension, 7(23.3%) had moderate Hypertension. The Obtained χ^2value 8.57 was significant at $p<0.05$ level and thus stated research hypothesis (H_2) was supported. So it is inferred that there is significant association between age and level of blood pressure among clients with Hypertension.

H_2: There will be a significant association between the level of blood pressure among clients with Hypertension with their selected demographic variables

With Regards to gender, 10 were males among them 6(20%) had mild Hypertension, 4(13%) had moderate Hypertension and 20 were females among them 15(50%) had mild Hypertension, 5 (17%) had moderate Hypertension. By using the yates calculation the obtained χ^2 value 0.71 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between gender and level of blood pressure among clients with Hypertension.

With regard to marital status majority of hypertensive clients 23were married among them 18(60%) had mild Hypertension, 5(17%) had moderate Hypertension and 7 were widow among them 3(10%) had mild Hypertension, 4(13%) had moderate Hypertension. The obtained χ^2 value3.2 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between marital status and level of blood pressure among clients with Hypertension.

Regarding educational status, majority of hypertensive clients 22 were illiterate, among them 13 (43%) had mild Hypertension, 9(30%) had moderate Hypertension and in primary education 7 (23%) had mild Hypertension and in secondary education 1(3%) had mild Hypertension. The obtained χ^2 value 4.67 not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between educational status and level of blood pressure among clients with Hypertension.

Regarding occupational status, 17 belongs to self employed, among them 14(47%) had mild Hypertension,3 (10%) had moderate Hypertension. 12 belongs to unemployed among them 6(20%) had mild Hypertension,6(20%) had moderate Hypertension and 1(3%) belongs to private employee had mild Hypertension. The obtained χ^2 value 3.94 not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between occupational status and level of blood pressure among clients with Hypertension.

Regarding type of work, majority 20 had heavy work among them 11(37%) had mild Hypertension, 9(30%) had moderate Hypertension. And 6 hypertensive clients had moderate work had mild Hypertension and 4 had sedentary work also had mild Hypertension. The obtained χ^2 value was 6.42 significant at $p<0.05$ level and thus stated research hypothesis (H_2) was supported. So it is inferred that there is significant association between type of work and level of blood pressure among clients with Hypertension.

With regard to monthly income per capita, majority 24 belongs to ₹ 1500-₹2999 among them 17(57%) had mild Hypertension, 7(23%) had moderate Hypertension. And 6 hypertensive clients were belongs to ₹ 3000 - ₹ 4999 among them 4(13%) had mild Hypertension, 2(7%) had moderate Hypertension. The obtained χ^2 value was 0.04 not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between monthly income per capita and level of blood pressure among clients with Hypertension.

Regarding working hours per day, 16 hypertensive clients worked for 6-8 hours among them 13(43%) had mild Hypertension, 3(10%) had moderate Hypertension and 14 worked for <6 hours among them 8(27%) had mild Hypertension, 6(20%) had moderate Hypertension. The obtained χ^2 value 2.06 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between working hours per day and level of blood pressure among clients with Hypertension.

Regarding body mass index, 2 clients were underweight had moderate Hypertension, 20 clients had normal weight among them 16(53%) had mild Hypertension and 4(13%) had moderate Hypertension, 8 clients had overweight among them 5(17%) had mild Hypertension,3(10%)had moderate Hypertension. The obtained χ^2 value 5.84 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between body mass index and level of blood pressure among clients with Hypertension.

Regarding family history of Hypertension, majority of hypertensive clients 23 had no family history of Hypertension among them 15(50%) had mild Hypertension, 8(27%) had moderate Hypertension and 7 had family history of Hypertension among them 6(20%) had mild Hypertension and 1(3%) had moderate Hypertension. By using the yates calculation the obtained χ^2 value 1.07 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between family history of Hypertension and level of blood pressure among clients with Hypertension.

Regarding if yes, mention the relationship of the person, 4 were had the relationship of father, among them 4(57%) had mild Hypertension,1(14%) had moderate Hypertension and 2(29%) had the relationship of father and mother had mild Hypertension. The obtained χ^2 value 0.78 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between if yes, mention the relationship of the person and level of blood pressure among clients with Hypertension.

Regarding lifestyle practices, 8 were smokers among them 5(14%) had mild Hypertension, 3 (8%) had moderate Hypertension. And 6 had alcohol, among them 4(12%) had mild Hypertension, 2(6%) had moderate Hypertension. 11 had tobacco chewing among them 8(22%) had mild Hypertension, 3(8) had moderate Hypertension. And 11 hypertensive clients had no lifestyle practices among them 8(22%) had mild Hypertension, 3(8%) had moderate Hypertension. The obtained χ^2 value 0.38 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2)

was not supported. So it is inferred that there is significant association between lifestyle practices and level of blood pressure among clients with Hypertension.

Regarding leisure time activity, 17 hypertensive clients had leisure time activity among them 13(43%) had mild Hypertension, 4(13%) had moderate Hypertension. And 13 hypertensive clients had no leisure time activity among them 8(27%) had mild Hypertension and 5(17%) had moderate Hypertension. By using yates calculation the obtained χ^2 value 0.78 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between leisure time activity and level of blood pressure among clients with Hypertension.

Regarding if yes, how do you spent leisure time by, 10 were watching television, among them 9(53%) had mild Hypertension, 1(6%) had moderate Hypertension. And 7 were by chatting among them 4(23%) had mild Hypertension and 3(18%) had moderate Hypertension. The obtained χ^2 value 2.67 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between if yes, how do you spent leisure time by and level of blood pressure among clients with Hypertension.

Table 4.2

Frequency, Percentage Distribution and $\chi 2$ Value of Post-Test Level of Blood Pressure among Clients with Hypertension with their Selected Demographic Variables.

N=30

S.No.	Demographic Variables	Normal Blood Pressure		Mild Hypertension		χ^2 Value
		n	%	n	%	
	A. Family profile					
1	Age in years					
	a) 40-45 years	3	10	1	3	14.5*
	b) 46-50 years	5	16	3	10	df=3
	c) 51-55 years	2	7	2	7	
	d) 56-60 years	0	0	14	47	
2	Gender					
	a) Male	3	10	7	23	0.07
	b) Female	7	23	13	44	df=1
3	Marital status					
	a) Married	10	33	13	44	4.46
	b) Widow	0	0	7	23	df=3
4	Type of family					
	a) Nuclear	6	20	14	14	0.33
	b) Joint	4	13	6	20	df=2
5	Educational status					
	a) Primary	4	13	3	10	2.73
	b) Middle	0	0	1	3	df=5
	c) Illiterate	6	20	16	54	

Contd.....

S.No.	Demographic Variables	Normal Blood Pressure		Mild Hypertension		χ^2 Value
		n	%	n	%	
6	Occupational status					
	a) Private employee	1	3	0	0	4.25
	b) Self employed	7	24	10	33	df=3
	c) Un employed	2	7	10	33	
7	Type of work					
	a) Sedentary work	2	7	2	7	1.94
	b) Moderate work	3	10	3	10	df=2
	c) Heavy work	5	16	15	50	
8	Monthly income per capita					
	a) ₹ 1500 - ₹ 2999	9	30	15	50	0.94
	b) ₹ 3000 - ₹ 4999	1	3	5	17	df=3
9	Working hours per day					
	a) <6 hours	3	10	11	37	1.74
	b) 6-8 hours	7	23	9	30	df=3
	C. Health history					
10	Body mass index(kg/m^2)					
	a) Under weight	0	0	2	7	7.9*
	b) Normal weight	10	33	10	33	df=3
	c) Over weight	0	0	8	27	

Contd.....

S.No.	Demographic Variables	Normal Blood Pressure		Mild Hypertension		χ^2 Value
		n	%	n	%	
11	Family history of Hypertension					
	a) Yes	2	7	5	17	0.09
	b) No	8	26	15	50	df=1
12	If yes, mention the relationship of the person					
	a) Father	3	43	1	14	2.3
	b) Father and mother	3	43	0	0	df=3
	C. Personal habits					
13	Lifestyle practices					
	a) Smoking	1	3	7	19	15.5*
	b) Alcohol	0	0	6	17	df=3
	c) Tobacco chewing	1	3	10	28	
	d) None	8	22	3	8	
14	If yes, how do you spend leisure time by…….					
	a) Watching television	5	24	8	38	0.79
	b) Chatting	2	10	6	28	df=3

* Significant at $p<0.05$ level

Table 4.2: Reveals that in post-test, regarding age 3(10%) hypertensive clients were in the age group of 40-45 years had normal blood pressure and 1(3%) had mild Hypertension, and in the age group of 46-50 years 5(16%) had normal blood pressure,

3(10%) had mild Hypertension and the age group of 51-55 years 2(7%) had normal blood pressure, 2(7%) had mild Hypertension. And the age group of 56-60 years no one had normal blood pressure, 14(47%) had mild Hypertension. The obtained χ^2value 14.5 was significant at $p<0.05$ level and thus stated research hypothesis (H_2) was supported. So it is inferred that there is significant association between age and level of blood pressure among clients with Hypertension.

H_2: There will be a significant association between the levels of blood pressure among clients with Hypertension with their selected demographic variables

With Regard to gender, 10 were males among them 3(10%) had normal blood pressure, 7(23%) had mild Hypertension and 20 were females among them 7(23%) had normal blood pressure, 13 (44%) had mild Hypertension. By using Yates calculation the obtained χ^2 value 0.07 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between gender and level of blood pressure among clients with Hypertension.

With regard to marital status majority of hypertensive clients 23 were married among them 10(33%) had normal blood pressure, 13(44%) had mild Hypertension and 7(23%) were widow had mild Hypertension. The obtained χ^2 value4.46 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between marital status and level of blood pressure among clients with Hypertension.

Regarding type of family 20 belongs to nuclear family among them 6(20%) had normal blood pressure, 14(47%) had mild Hypertension and 10 belongs to joint family among them 4(13) had normal blood pressure, 6(20%) had mild Hypertension. The obtained χ^2 value 0.33 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between type of family and level of blood pressure among clients with Hypertension.

Regarding educational status, majority of hypertensive clients 22 were illiterate, among them 6(20%) had normal blood pressure, 16(54%) had mild Hypertension and in primary education 4 (13%) had normal blood pressure, 3(10%) had mild Hypertension and in middle school 1(3%) had mild Hypertension. The obtained χ^2 value 2.73 not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between educational status and level of blood pressure among clients with Hypertension.

Regarding occupational status, 17 belongs to self employed, among them 7(24%) had normal blood pressure,10 (33%) had mild Hypertension. 12 belongs to unemployed among them 2(7%) had normal blood pressure,10(33%) had mild Hypertension and 1(3%) belongs to private employee had normal blood pressure. The obtained χ^2 value 4.25 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between occupational status and level of blood pressure among clients with Hypertension.

Regarding type of work, majority 20 had heavy work among them 5(16%) had normal blood pressure, 15(50%) had mild Hypertension. And 6 hypertensive clients had moderate work 3(10%) had normal blood pressure, 3(10%) had mild Hypertension. And 4 clients were belongs to sedentary work,2(7%) had normal blood pressure,2(7%) had mild Hypertension. The obtained χ^2 value was 1.94 not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between type of work and level of blood pressure among clients with Hypertension.

With regard to monthly income per capita, majority 24 belongs to ₹ 1500- ₹ 2999 among them 9(30%) had normal blood pressure, 15(50%) had mild Hypertension. And 6 hypertensive clients were belongs to ₹ 3000 - ₹ 4999 among them 1(3%) had normal blood pressure, 5(17%) had mild Hypertension. The obtained χ^2 value was 0.94 not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between monthly income per capita and level of blood pressure among clients with Hypertension.

Regarding working hours per day, 16 hypertensive clients worked for 6-8 hours among them 7(23%) had normal blood pressure, 9(30%) had mild Hypertension and 14 worked for <6 hours among them 3(10%) had normal blood pressure, 11(37%) had mild Hypertension. The obtained χ^2 value 1.74 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between working hours per day and level of blood pressure among clients with Hypertension.

Regarding body mass index, 2 (7%) clients were underweight had mild Hypertension, 20 clients had normal weight among them 10(33%) had normal blood pressure and 10(33%) had mild Hypertension, 8 clients had overweight all are 8(27%) had mild Hypertension. The obtained χ^2 value 7.9 was significant at $p<0.05$ level and thus stated research hypothesis (H_2) was supported. So it is inferred that there is significant association between body mass index and level of blood pressure among clients with Hypertension.

Regarding family history of Hypertension, majority of hypertensive clients 23 had no family history of Hypertension among them 8(26%) had normal blood pressure, 15(50%) had mild Hypertension and 7 had family history of Hypertension among them 2(7%) had normal blood pressure and 5(17%) had mild Hypertension. By using Yates calculation the obtained χ^2 value 0.09 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between family history of Hypertension and level of blood pressure among clients with Hypertension.

Regarding if yes, mention the relationship of the person, 4 were had the relationship of father, among them 3(43%) had mild Hypertension, 1(14%) had moderate Hypertension and 3 had the relationship of father and mother, 3(43%) had mild Hypertension. The obtained χ^2value 2.3 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between if yes, mention the relationship of person and level of blood pressure among clients with Hypertension.

Regarding lifestyle practices, 8 clients were smokers among them 7(19%) were had mild Hypertension and 1(3%) had normal blood pressure and 6(17%) had alcohol had mild Hypertension, 11 were had tobacco chewing among them 10(28%) had mild Hypertension and 1(3%) had normal blood pressure. 11 were not had any lifestyle practices among them 8(22%) had normal blood pressure and 3(8%) had mild Hypertension. The obtained χ^2 value15.5 was significant at $p<0.05$ level and thus stated research hypothesis (H_2) was supported. So it is inferred that there is significant association between lifestyle practices and level of blood pressure among clients with Hypertension.

Regarding if yes, how do you spent leisure time by, 10 were watching television, among them 5(25%) had normal blood pressure, 8(38%) had mild Hypertension. And 8 were by chatting among them 2(10%) had normal blood pressure and 6(28%) had mild Hypertension. The obtained χ^2 value 0.79 was not significant at $p<0.05$ level and thus stated research hypothesis (H_2) was not supported. So it is inferred that there is no significant association between if yes, how do you spent leisure time by and level of blood pressure among clients with Hypertension.

CHAPTER - V

DISCUSSION

The aim of the present study was to evaluate the effectiveness of Garlic Powder in reducing the blood pressure among clients with Hypertension. The study was conducted by using pre-experimental design. The subjects were selected for the study is clients with Hypertension in Vazhukkuparai village at Coimbatore. The sample size was 30.

Sphygmomanometer was used to monitor the Blood Pressure. The mean arterial blood pressure was taken for calculation. The responses were analyzed by using descriptive statistics (Mean, Standard deviation, Frequency, Percentage) and inferential statistics ('t' test and chi-square). Discussion on the findings was arranged based on the objectives of the study.

The first objective of the study was to assess the level of blood pressure among clients with Hypertension. The study findings revealed that among 30 clients with Hypertension in pre-test 21(70%) had mild Hypertension and 9(30%) had moderate Hypertension.(Table:2)

The study findings were supported by Gupta., P.C.(2004) conducted a population based epidemiological study on Hypertension prevalence and blood pressure trends in 88653 subjects in Mumbai. 5 voter's lists were used to enrol the subjects and survey was used to select the sample. The study result revealed that over

all prevalence of Hypertension is 4 and blood pressure trends in 88653 subjects in Mumbai. 5 voter's lists were used to enrol the subjects and survey was used to select the sample. The study result reveals that over all prevalence of Hypertension is 47.5% in males and 48.4% in females.

The second objective was to evaluate the effectiveness of Garlic Powder in reducing the blood pressure among clients with Hypertension. The study results revealed that in post-test 10(33%) had normal blood pressure and 20(67%) had mild Hypertension. (Table: 3.1)

The mean pre-test level of blood pressure was 115.1, standard deviation was 4.89. In the mean post level of blood pressure was 99.4 , standard deviation 8.82 and the mean difference was 15.7, 't' value was 11.98 , it was significant at $P<0.05$ level. Hence the stated hypothesis (H_1) was accepted. (Table: 3.3)

The findings were supported by Paul Bergner. (2004) conducted a Meta analysis study on garlic and Hypertension. The data from 415 patients from eight controlled trials of garlic for high blood pressure were obtained. The typical dose of 600-900 mg of Garlic Powder per day for four weeks was administered. The study result reveals that a typical drop of 7.7 mmHg of systolic blood pressure and 5mmHg of diastolic blood pressure.

In this present study all subjects (30) were also assessed by the checklist on signs and symptoms associated with Hypertension. It shows that the mean pre-test score was 4.9, standard deviation was 1.04. in the mean post-test was 1.9, standard

deviation score was 0.83 and the mean difference was 3, obtained ‘t’ value was 23.83 it was highly significant at $p<0.05$ level (Appendix M)

The third objective was to determine the association between the level of blood pressure among clients with Hypertension with their selected demographic variables. The study results revealed that in pre-test there was significant relationship between the demographic variables like age, type of work and in post-test like age, body mass index and lifestyle practices had association with blood pressure level among clients with Hypertension. Hence the stated hypothesis (H_2) was accepted.

In this study on screening of hypertensive clients the investigator found that 23 clients had severe Hypertension. So the investigator referred the hypertensive clients to Arisipalayam Primary Health Centre for treatment.

CHAPTER – VI

SUMMARY, CONCLUSION AND RECOMMENDATION

This chapter presents a brief account of the present study. Conclusions are drawn from the findings and the implications of the result are stated. It also includes recommendations, implications for the nursing practice, nursing education, nursing administration and nursing research.

Summary of the Study

The present study is to evaluate the effectiveness of Garlic Powder in reducing the blood pressure among clients with Hypertension in a selected rural area at Coimbatore.

The objectives of the Study were

- To assess the level of blood pressure among clients with Hypertension.
- To evaluate the effectiveness of Garlic Powder in reducing the level of blood pressure among clients with Hypertension.
- To determine the association between the level of blood pressure among clients with Hypertension with their selected demographic variables.

A pre experimental design was used to evaluate the effectiveness of Garlic Powder in reducing level of blood pressure among clients with Hypertension in a selected rural area at Coimbatore.

A Non probability purposive sampling technique was adopted to select the subjects with inclusion criteria. Sample size was 30.

The data collection tool consisted of 2 parts.

Part I: It consists of demographic variables that includes 3 sections

a) **Family profile**: It consists of age, gender, marital status, religion, type of family, educational status, occupational status, type of work, monthly income per capita, working hours per study
b) **Health history**: It consists of height (cm), weight (kg), body mass index (kg/m^2), family history of Hypertension; if yes mention the relationship of the person.
c) **Personal habits**: which includes dietary pattern, habit of salt intake food, lifestyle practices, do you practice exercise, if yes, mention the type of exercise, do you have leisure time activity, if yes, how do you spent the leisure time by,

Part II: Sphygmomanometer was used to check blood pressure.

The content validity was checked by experts in nursing and medicine. Data collection was started by doing the Survey for 2 days to select the subjects. Blood pressure was checked by using sphygmomanometer for 5 days for the subjects to observe the changes in blood pressure. Pre-test blood pressure assessment was done on 8^{th} day. Intervention on administration of 900 mg of Garlic Powder was mixed with 25ml of skimmed milk and given before breakfast, it continued for 30 days. The

post-test blood pressure assessment was done on 31st day after intervention by using sphygmomanometer.

The collected data were analyzed by using both descriptive statistics (Mean, Standard deviation, Frequency and Percentage) and inferential statistics (paired 't' test and chi-square) and results were calculated.

Major Study Findings

- Regarding the demographic variables 27% were in the age group of 46-50 years, 50% were in females,100% belongs to Hindu religion, 37% of the clients were undergone heavy work,43% were worked for 6-8 hours and 100% had non vegetarian, 22% had the lifestyle practices of tobacco chewing and 15% had the habit of smoking and alcohol intake.
- With regard to effectiveness of Garlic Powder in reducing level of blood pressure among clients with Hypertension the mean post-test level of blood pressure was less than the mean pre-test level of blood pressure among clients with Hypertension. The obtained't' value11.98 was significant at $p<0.05$ level.
- With regard to the association between the level of blood pressure with their selected demographic variables, in pre-test, age, type of work and in post-test, age, body mass index and lifestyle practices had significant association with level of blood pressure among clients with Hypertension.

Conclusion

The main conclusions drawn from this present study was that in pre-test most of the clients with Hypertension (70%) had mild Hypertension and 30% had moderate

Hypertension. The overall pre-test mean score was 115.1 and post-test mean score was 99.4 and obtained 't' value was 11.98 statistically significant at $p<0.05$ level. After the administration of Garlic Powder the subjects become familiar and found themselves comfort and express satisfaction, and they shared their experience with their family members and others. They recommend others to follow the same intervention. This ensure that administration of 900mg of Garlic Powder reduce the blood pressure effectively and also it will helps to reduce morbidity and mortality rate of Hypertension and make the clients with Hypertension to live healthy.

Implication of the Study

According to Tolsma (1995), the section of the research report that focuses on nursing implication usually includes specific suggestions for nursing practice, nursing education, nursing administration and nursing research.

Nursing Practice

- Nurses are key persons of the health team who plays a major role in health promotion and maintenance, the community health nurse create an awareness regarding complications of Hypertension.
- The study findings will help the community health nurse to know the importance of Garlic Powder intake in reducing Hypertension and help to motivate the clients with Hypertension to follow.
- The study findings will encourage the clients to know the importance of Garlic Powder as a complementary therapy in reducing blood pressure among clients with Hypertension.

- The community health nurse can plan for health programme on alternative and complementary treatment of Hypertension

Nursing Education

- The nursing students will learn accurate assessment of blood pressure on clients with Hypertension.
- The student nurses will update their knowledge regarding the method of reducing blood pressure among clients with Hypertension.
- Nursing curriculum has to focus on periodical screening programme of Hypertension in community.

Nursing Administration

• The public health nurse will be take part in the health policy making, developing protocols, standing orders related to designing the health education programme and strategies on Garlic Powder as a complementary treatment for Hypertension.

• The public health nurse can organize an In-service education program on use of Garlic Powder as a complementary and alternative treatment for Hypertension.

• The community health nurse can explore their potential and encourage innovative ideas in preparation of appropriate teaching material and usage of manpower for organizing the health education programme on Hypertension.

• The present study proposes to help the community health nurse to plan for the awareness programme on Hypertension

- The public health nurse can motivate the Medias to educate the people on the intake of Garlic Powder is an importance of alternative and complementary treatment for Hypertension.
- The community health nurse can arrange periodic mass health education programme in community to create an awareness of Hypertension.

Nursing Research

- Research can be conducted on complementary treatment for Hypertension for better gained knowledge of clients with Hypertension for the effective quality of care to reduce morbidity and mortality rate on Hypertension.
- The study findings can be added to the research review regarding the effectiveness of Garlic Powder in reducing blood pressure.
- The study findings can be kept as the baseline data and further research can be conducted in same setting and expand the study in different fields.

Limitations

- Study subjects were difficult to take the Garlic Powder along with skimmed milk due to garlic odour.
- The investigator felt difficult to get the subjects daily at right time

Recommendations

- The same study can be replicated on large sample to generalize the findings.

- Effectiveness of Garlic Powder can be compared with other complementary therapies to find its effectiveness.
- The same study can be conducted in different settings.
- The comparative study can be conducted between rural and urban area.
- The effectiveness of study can be proved better if the study has the control group.
- A similar study can be conducted by assessing the knowledge and attitude aspects of Hypertension among adult population of community.

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Website: www.annaimeenakshi.in

Ref. No.

- 5 APR 2011
கோயமுத்தூர்-641 018.

002577

Date : April 1, 2011

To

The Deputy Director of Health Services,
219-Race Course Road,
Coimbatore – 18.

Respected sir,

Ms. Rajalakshmi.R, is a student of II Year M.Sc.,(Nursing) in Annai Meenakshi college of Nursing, Coimbatore. She is conducting **" A STUDY TO ASSESS THE EFFECTIVENESS OF GARLIC POWDER ON LEVEL OF BLOOD PRESSURE AMONG CLIENTS WITH HYPERTENSION IN SELECTED RURAL AREAS AT COIMBATORE".**

This is for her research work to be submitted to the Tamil Nadu Dr. M.G.R. Medical University in partial fulfillment of the university requirement for the award of M.Sc.,(Nursing) Degree.

As a part of her study she would like to collect the data from the Hypertensive clients in selected rural areas under Arisipalayam Primary Health Centre. The student will furnish project personally. The student will follow the norms, ethics and policies practiced in community setting.

Thanking you,

Yours faithfully,

Permitted

துணை இயக்குநர் சுகாதாரப்பணிகள்
கோயமுத்தூர் - 18.

7.4.11

PRINCIPAL
Annai Meenakshi College of Nursing
COIMBATORE-641 021.

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Phone : 0422 - 2675641, 2672705
Fax : 0422 - 2676016
Email : ceandct@dataone.in
ceandct@gmail.com
Website: www.annaimeenakshi.in

Ref. No.

Date : .....

Requisition for Content Validity

From

Ms. Rajalakshmi. R
I - Year M.Sc(N)
Annai Meenakshi College of Nursing,
Coimbatore – 21.

Through
The Principal,
Annai Meenakshi College of Nursing,
Coimbatore – 21.

PRINCIPAL
Annai Meenakshi College of Nursing
COIMBATORE-641 021.

To

Respected Sir/Madam,

Sub: Requisition for expert opinion and suggestion for content validity of the tools – Reg.

I am a student of M.Sc., Nursing I year of Annai Meenakshi College of Nursing, Coimbatore, affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai. As a partial fulfillment of the M.Sc., Nursing programme. I am conducting **"A Study to Evaluate the Effectiveness of Garlic Powder on Blood Pressure among Clients with Hyper Tension in a Selected Rural Area at Coimbatore"**. I am hereby enclosing the following:

1. Statement and objectives of the study
2. Hypotheses
3. Methodology
4. Tool
5. Intervention
6. Content Validity certificate.

Herewith I am submitting the developed tool for content validity and for expert opinion and possible suggestion. It will be grateful to you and request you to return the same to the undersigned at the earliest possible.

Thanking you,

Yours faithfully,

Place: Coimbatore
Date:

APPENDIX C

List of Experts who validated the Tool

Dr.VEERAKESARI,M.D.
Consultant Physician,
Shri Meenakshi Hospital,
Coimbatore.

Dr.RAVISHANKAR, M.D.,
Professor,
Department of Community Medicine,
P.S.G Institute of Medical Sciences.

PROF. SARAMMAL SAMUEL,M.Sc(N).,
Principal,
R.V.S College of Nursing,
Sulur.

PROF. JAENY KEMP, M.Sc(N).,
Principal,
G.K.N.M Hospital and Institute of Nursing,
Coimbatore.

PROF. SIVAGAMI, M.Sc(N).,
Vice Principal,
KMCH College of Nursing,
Coimbatore.

PROF. W.CHITHRA,M.Sc(N).,
SRIPMS College of Nursing,
Coimbatore.

Mrs.AMUTHA,M.Sc(N).,
Assistant Professor,
KMCH College of Nursing,
Coimbatore.

Mrs. SUMATHI,M.Sc(N).,
Assistant Professor,
KMCH College of Nursing,
Coimbatore.

Mrs. V. KAVITHA, M.Sc.,PGDND,RD.,
Senior Dietition,
P.S.G Hospital,
Coimbatore.

Mrs. VIDHYA.J.,
Dietition,
G.K.N.M Hospital,
Coimbatore.

Dr. P.T. SALEENDRAN, PHD.,
Assistant professor in management,
D.J Academy for management excellence,
Coimbatore.

APPENDIX D

Structured Interview Questionnaire (English)

PART-I

Demographic Variable

Read the following items carefully and complete them by placing tick mark ((√) in the portions provided.

Sample no:

A.FAMILY PROFILE

1. Age (years) ( )

2. Gender

   a. Male ( )

   b. Female ( )

3. Marital status

   a. Married ( )

   b. Unmarried ( )

   c. Widow ( )

   d. Separated ( )

4. Religion

   a. Hindu ( )

   b. Muslim ( )

   c. Christian ( )

   d. Others ( )

5. Type of family

   a. Nuclear family ( )

   b. Joint family ( )

   c. Extended family ( )

6. Educational status

a. Primary ( )

b. Middle ( )

c. High school ( )

d. Higher secondary ( )

e. Collegiate ( )

f. Illiterate ( )

7. Occupational status

a. Govt .Employee ( )

b. Private Employee ( )

c. Self Employed ( )

d. Un Employed ( )

8. Type of work

a. Sedentary work ( )

b. Moderate work ( )

c. Heavy work ( )

9. Monthly income per capita

a. ₹ 1500 - ₹ 2999 ( )

b. ₹ 3000 - ₹ 4999 ( )

c. ₹ 5000 - ₹ 9999 ( )

d. ₹ 10000 and above ( )

10. Working Hours per day

a. <6 hours ( )

b. 6-8 hours ( )

c. 9-11 hours ( )

d. >11 hours ( )

B. HEALTH HISTORY

1. Height (cm)---------- ( )
2. Weight (kg)---------- ( )
3. Body mass index (kg/m^2)
    a. Under weight ( )
    b. Normal weight ( )
    c. Over weight ( )
    d. Obesity ( )
4. Family history of hypertension
    a. Yes ( )
    b. No ( )
5. If yes, mention the relationship of the person
    a. Father ( )
    b. Mother ( )
    c. Father and Mother ( )
    d. Others ( )

C.PERSONAL HABITS

1. Dietary pattern
    a. Vegetarian ( )
    b. Non vegetarian ( )
2. Habit of salt intake
    a. During cooking ( )
    b. During eating ( )
    c. Without salt ( )

3. Life style practices

a. Smoking ( )

b. Alcohol intake ( )

c. Tobacco chewing ( )

d. None ( )

4. Do you practice exercise?

a. Yes ( )

b. No ( )

5. If yes, mention the type of exercise

a. Walking at once a day ( )

b. Walking at twice a day ( )

c. Walking with exercise ( )

6. Do you have leisure time activity

a. Yes ( )

b. No ( )

7. If yes, how do you spent the leisure time by……

a. Watching television ( )

b. Reading book ( )

c. Chatting ( )

d. Sleeping ( )

e. Others, specify……. ( )

□□சேர்ப்□கை E

பகு□ I

தகவலாளர்□□ய □ பரரி

□□□கண்ட படிவமீதை கவனமாக படிமீது தகுகித □ டையை

கொடு□கள்பட்ட காலமீ□ல் கு□□க□ரி.

அ. குடுரிப □ பரரி

மா□□ எண் :

1. வயது (வருடமீ□ல்)

2. பா□னரி

அ) ஆண் ( )

ஆ) பெண் ( )

3. □ருமண □ பரரி

அ) □ருமணமானவர் ( )

ஆ) □ருமணமாகாதவர் ( )

இ) □ தவை ( )

ஈ) □□கிது வா□பவர் ( )

4. மதரி

அ) இகிது ( )

ஆ) முஸ்□ரி ( )

இ) லி□ஸ்தவரி ( )

ஈ) ம□றவை ( )

5. குடுரிபமீ□ணிவகைகம்

அ) த□ □குடுரிபரி ( )

ஆ) கூட்டு□குடுரிபரி ( )

இ) □ □வான குடுரிபரி ( )

6. கல்□ மீதகு□

அ) ஆரிப □லை□கல்□ ( )

ஆ) நடு □லை□கல்□ ( )

இ) உயஞ்□லை□கல்□ ( )

ஈ) மேல்□லை□கல்□ ( )

உ) இளத்கலை ( )

ஊ) படி□காதவஞ் ( )

7. வேலை □ பரரி

அ) அரசு ஊ□யஞ் ( )

ஆ) த□ யாஞ்ஊ□யஞ் ( )

இ) சுய தொ□ல் ( )

ஈ) வேலைய□றவஞ் ( )

8. தொ□ல் / ப□ மீதணிமை

அ) எ□ தான வேலை ( )

ஆ) □தமான வேலை ( )

இ) கடினமான வேலை ( )

9. த□ நபஞ்மாத வருமானரி (₹)

அ) ₹ 1500 முதல் – 2999 வரை ( )

ஆ) ₹ 3000 – 4999 வரை ( )

இ) ₹ 5000 – 9999 வரை ( )

ஈ) ₹ 10000 ம□றுரி அத□குமேல் ( )

10. வேலை செ□□ரி நேரரி

அ) 6 ம□ நேரமீ□□குமேல் ( )

ஆ) 6–8 ம□ நேரரி ( )

இ) 9–11 ம□ நேரரி ( )

ஆ) 11 ம□ நேரமீ□□குமேல் ( )

ஆ. உடல் நல□ கு□ள்□□ பரரி

1. உயரரி (செ.பூ.)

2. எடை (லிலோ லிராரி)

3. உடல் பருமணிஅள□ (லிலோ லிராரி / பூ²)

அ) குறைகித எடை ( )
ஆ) அளவான எடை ( )
இ) அ□க எடை ( )
ஈ) உடல் பருமணி ( )

4. குடுரிபமீ□ல் இரமீத□ கொ□ள்பால் பா□□கள்பட்டவஞ்ளை ப□□ய □ பரரி.

(அ) உண்டு (ஆ) இல்லை

5. உண்டு எ□ ல் அவஞ்ஙகித வகைர் ல் உற□ னஞ். .. ..

அ) தகிதை ( )
ஆ) தா□ ( )
இ) தகிதை ம□றுரி தா□ ( )
ஈ) ம□றவஞ்கும் ( )

இ. சுய பழ□கத் கம்

1. உட்கொம் ளுரி உண□ வகை

அ) தாவர வகை ( )
ஆ) மா□ச வகை ( )

2. உண□ ல் உள்□சேஞ்ரீது□ கொம் ளுரி □ தரி

அ) சமை□குரிபொழுது ( )
ஆ) சாள்□டுரிபொழுது ( )
இ) உள்□ல்லாத உண□ ( )

3. வா□□கை முறை பழ□கத்கம்

அ) □கை □டிமீதல் ( )

ஆ) மது அருகிதுதல் ( )

இ) □கைர் லை போடுதல் ( )

ஈ) ஒணறு□ல்லை ( )

4. உட□பர் □□ செ□□ரி பழ□கரி உண்டா ?

அ) ஆரி ( )

ஆ) இல்லை ( )

5. ஆரி எ□ ல், எகித வகை உட□பர் □□ என கூற□ரி

அ) ஒரு நாளை□கு ஒரு முறை நடைள்பர் □□ ( )

ஆ) ஒரு நாளை□கு இரண்டு முறை நடைபர் □□ ( )

இ) நடைபர் □□ ம□றுரி உட□பர் □□ ( )

6. உத்களு□கு ஓ□□ நேர செயல்பாடுகம் உண்டா ?

அ) ஆரி ( )

ஆ) இல்லை ( )

7. ஆரி எ□ ல், எள்படி ஓ□□ நேரமீதை செலவ□ள்□ங்கும் ?

அ) தொலை□காட்□ பாஞ்தல் மூலமாக ( )

ஆ) □மீதகத்கம் வா□மீதல் மூலமாக ( )

இ) ம□றவருடணீபேசுதல் மூலமாக ( )

ஈ) ம□றவை ( )

APPENDIX F

CRITERIA RATING SCALE FOR VALIDATING THE TOOL

Respected Madam/Sir,

Instructions:

Kindly review the items in the tool. If you are agree with the criteria, please place a tick(√) mark in "RELEVANT" column otherwise place the tick mark in "NEED MODIFICATION" column or "NOT RELEVANT" and give your comments in the remarks column.

SECTION A: DEMOGRAPHIC VARIABLES

SL. NO.	ITEM	RELEVANT	NEEDS MODIFICATION	NOT RELEVANT	REMARKS
1.	Age				
2.	Gender				
3.	Marital status				
4.	Religion				
5.	Type of family				
6.	Educational status				
7.	Occupational status				
8.	Income				
9.	Dietary pattern				
10.	Lifestyle practices				
11.	Type of work				

APPENDIX G

INTERVENTION ON GARLIC POWDER

Ingredients:

- Garlic
- Weighing machine
- Plastic cover
- Boiled skimmed milk

Preparation:

First peel the garlic cloves, cut them into thin slices. Keep that slices under sunlight for 1 week to dry. Then take that dried garlic pieces in a pan and roast it on simmer for 5 minutes. After that the roasted garlic pieces were grinded by mixer grinder to prepare garlic powder. Then weigh the garlic powder and take 900 mg of garlic powder packed in the plastic cover.

Procedure:

- Explain the procedure to the client
- Take written consent from the client
- Take 900 mg of garlic powder mixed in to 25ml of boiled skimmed milk
- Administer before breakfast

After care:

Advice the clients to report about any abnormal symptoms within 2 hours after intake of garlic powder.

□□சேஞ்□கை H

□ண்டு பொடி தயா□□குரி முறை

தேவையான பொருட்கம் :

□ண்டு, தராசு, பா□ □ணிபை, பால்.

தயா□□குரி முறை :

தேவையான அள□ □ண்டை எடுமீது தோலை உ□மீது □ணி மெல்□ய துண்டுகளாக நறு□க□ரி. நறு□லிய □ண்டு துண்டுகளை சூ□ய ஒ□ர் ல் ஒரு வார காலரி காய வை□க□ரி. □ணி உலஞ்சித □ண்டு துண்டுகளை ஒரு பாமீ□ரமீ□ல் போட்டு 5 □□டரி □தமான வெள்பமீ□ல் வறு□க□ரி. □ணி வறுமீத □ண்டு துண்டுகளை அரை□குரி இயகி□ரமீ□ல் போட்டு அரைமீது பொடியா□க□ரி. 900 லிராரி □றைய அள□ னை தரா□னை கொண்டு அளகிது, பா□ □ணிபைர் ல் அடைமீது வை□க□ரி.

செ□முறை

- தயா□□குரி முறைர் னை □ வ□□க□ரி.
- எழுமீது □ஞ்பமான சரிமதமீ□னைள்பெறவரி.
- 900 லிராரி □றை□ம்ள □ண்டு பொடிர் னை எடுமீது 25 □□ கா□ச்□ய பா□ல் கல□க□ரி.
- காலை உண□ □கு முணி இ□கரைசலை 30 நாட்களு□கு பருகுமாறு □னமுரி கொடு□க□ரி.

செ□முறை□கு □ணிகவ□ □க வேண்டியவை :

இ□கரைசலை குடிமீத □ணி ஏதாவது □ணி□ ளை□கம் இருகிதால் கூறுமாறு அ□□ □க□ரி.

APPENDIX I

EVALUATION CRITERIA CHECKLIST FOR VALIDATION OF INTERVENTION ON GARLIC POWDER ADMINISTRATION

INSTRUCTION

The expert is requested to go through following evaluation criteria checklist prepared for validating the intervention on garlic powder on level of blood pressure among clients with hypertension.There are three columns given for responses and a column and facilitate your remarks in the remarks column given

INTERPRETATION COLUMNS

- Meets the criteria - Column I
- Partially meets the criteria - Column II
- Does not meet the criteria - Column III

SL.NO	CRITERIA	I	II	III	REMARKS
I.	CONTENT				
1.	SELECTION OF CONTENT				
1.1	Content reflects the objectives				
1.2	Content has up to date knowledge				
1.3	Content is comprehensive for the learning need of clients with hypertension				
1.4	Content provides correct and accurate information				
1.5	Content coverage				
2.	ORGANIZATION OF CONTENT				
2.1	Logical sequences				
2.2	Continuity				
2.3	Integration				
II.	LANGUAGE				
1.	Local language is used in simple and in understandable dialogues				

2.	Technical terms are explained at the level of learners ability				
III.	FEASIBILTY/PRACTICABILITY				
1.	Is suitable to the clients				
2.	Permit self learning				
3.	Acceptable to clients				
4.	Interesting and useful to clients				
5.	Suitable for setting				
IV.	ANY OTHER SUGGESTIONS				
	•				
	•				
	•				

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ceandct@gmail.com
Website: www.annaimeenakshi.in

Ref. No.

Date : .....

Certificate of Validation

This is to certify that the tools developed by **Ms. R. Rajalakshmi** M.Sc., (N) I - Year student of Annai Meenakshi College of Nursing, Coimbatore, Tamil Nadu (Affiliated to The Tamil Nadu Dr. M.G.R. Medical University, Chennai) is validated by undersigned and can proceed with this tool and conduct the main study for dissertation entitled **"A Study to Evaluate the Effectiveness of Garlic Powder on Blood Pressure among Clients with Hyper Tension in a Selected Rural Area at Coimbatore"**.

Place: Coimbatore

Signature

Date:

Name and Designation

APPENDIX K

CONSENT FORM

Respected Sir/Madam,

I am RAJALAKSHMI.R I am doing my second year M.Sc(N) in Annai Meenakshi College of Nursing. I am doing a research on A Study to Evaluate the Effectiveness of Garlic powder in reducing the Blood Pressure among clients with Hypertension. I request your cooperation to complete my research. I assure you that you won't get any harm due to my research.

I am Mr./Mrs.---------- I heard about the Effectiveness of Garlic powder in reducing the blood pressure among clients with hypertension from Ms.Rajalakshmi. She explained me about the benefits of this intervention. I agree with this intervention of garlic powder and this study project whole heartedly.

Yours sincerely,

Place:

Date:

□□சேஞ்□கை L

ஒள்□தல் படிவரி

ம□ள்□□கு□யோரே,

வண□கரி. செல்□. ராஜலட்சு□ எணி நாணி அணினை பூனாட்□ செ□ □யஞ் கல்லூா□ர் ல் செ□ □யஞ் பட்ட மே□படிள்□ படிமீது□கொண்டிரு□லிறேணி நாணி வெம் ளைள்□ண்டு தூளை□கொண்டு இரமீத அழுமீதமீதை கட்டுள்படுமீதுவது ப□□ ஆரா□ச்□ செ□ய□ம் ளேணி இத□காக நாணி தத் களது முழு ஒமீதுழைள்பை கேட்டு□கொம் லிறேணி மேலுரி இதனால் தத் களுை□கு எகித ஒரு பா□ள்□ரி ஏ□படாது எணிதை தெ□□ மீது□ கொம் லிறேணி

□ரு. / □ரும□. .. .. எணிறி நாணி ராஜலட்சு□ செ□ □யஞ் அவஞ்□ ட□ருகிது வெம் ளைள்□ண்டு தூளை□கொண்டு இரமீத அழுமீதமீதை கட்டுள்படுமீதுவது ப□□ தெ□கிதுகொண்டேணி எனவே நாணி முழு மனதுடணிஇகித ஆரா□ச்□ர் ல் ஈடுபட சரிம□□லிறேணி

இடரி :

தத் கம்

உண்மை□ம் ள

நாம் :

APPENDIX M

Checklist for Assessing the Signs and Symptoms Associated with Hypertension

S.No	Signs and Symptoms	Yes	No
1.	Headache		
2.	Dizziness		
3.	Fatigue		
4.	Shortness of breath		
5.	Chest pain		
6.	Palpitation		
7.	Increased sweating		
8.	Nausea		
9.	Vomiting		
10.	Blurred vision		

Reliability

The tool was administered to 5 subjects representing the characteristics of the population. The reliability was calculated through Cohen's kappa method. It shows 6 items had perfect agreement, 3 items had substantial agreement and 1 item had moderate agreement. This showed that the tool found to be reliable.

பகு□ III

இரமீத அழுமீதமீ□□கான அ□கு□களை ச□பாஞ்□குரி ம□ள்□ட்டுமீ தாம்

வ. எண்.	அ□கு□கம்	ஆரி	இல்லை
1	தலைவ□		
2	மய□க□லை		
3	சோஞ்□		
4	மூச்சுத் திணறல்		
5	நென்சுவ□		
6	படபடள்□		
7	அ□க □ யஞ்வை		
8	குமட்டல்		
9	வாகி□		
10	மத்கலான பாஞ்வை		

Comparison of Signs and Symptoms Associated with Hypertension in Pre-Test and Post-Test Score among Clients with Hypertension.

N=30

S.no	Signs and Symptoms	No. of. Respondents		d
		Pre-test	Post-test	
1	Headache	29	8	21
2	Dizziness	26	1	25
3	Fatigue	30	20	10
4	Shortness of breath	1	0	0
5	Chest pain	3	1	2
6	Palpitation	14	0	0
7	Increased sweating	23	10	13
8	Nausea	2	0	0
9	Vomiting	0	0	0
10	Blurred vision	17	17	0

The above table reveals that in pre-test 29 clients had head ache and in post-test 8 clients had head ache, the difference was 21.in pre-test 26 clients had dizziness and in post-test 1 client had dizziness, the difference was 25. In pre-test 30 clients had fatigue and in post-test 20 clients had fatigue the difference was 10. In pre-test1 client had shortness of breath and in post-test no one had. In pre-test 3 clients had chest pain and in post-test 1 client had chest pain, the difference was 2. In pre-test 14 clients had palpitation and in post-test no one had chest pain. In pre-test 23 clients had sweating and in post-test 10 clients had chest pain, the difference was 13. In pre-test 2 clients

had nausea and in post test no one had nausea. In pre-test 17 clients had blurred vision and in post-test also 17 had blurred vision. Hence the stated hypothesis (H_1) was accepted. It was inferred that the garlic powder in reducing the symptoms associated with hypertension was effective.

Mean, Standard Deviation, Mean Difference and 't' Value of Pre-Test and Post-Test Score on Associated signs and Symptoms of Hypertension among Clients with Hypertension.

N=30

S.No	Variables	Mean	Standard deviation	Mean difference	't' Value
1	Pre-test	4.9	1.04	3	23.83*
2	Post-test	1.9	0.83		

* - Significant at P<0.05 level

The above table reveals that the pre-test score on symptoms associated with hypertension was 4.9 and post-test score was 1.9, it was lower than the pre-test. The standard deviation of pre-test score was 1.04 and in post-test score were 0.83. The mean difference was 3. The obtained 't' value was 23.83*, it was significant at $p<0.05$ level. Hence the stated hypothesis (H_1) was accepted. It was inferred that the garlic powder in reducing the symptoms associated with hypertension was highly effective.

Pre-Test Assessment of Blood Pressure

Intervention on Garlic Powder

Garlic Powder Preparation